

***The Landscape Architect's Role in  
Archaeological Resource Management in Britain***

**Ph.D. Thesis**

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***Declaration***

This thesis has been composed by myself and is my original work

M. M. P. Bandara



*Dedicated to  
Yoke van der Meer, past, present and future*

## ***Abstract***

This thesis presents a case for the close involvement of landscape architects in the conservation and presentation of archaeological sites in Britain. It is developed in five chapters. Chapter 1 defines the terms of study, and in particular, what is meant by *archaeological resources*, by *archaeological resource management*, and by *landscape*: it introduces the professions of archaeology and landscape architecture; it outlines the legislative framework relevant to archaeological conservation and preservation in Britain; and it concludes by describing the process of the study and its selection of the work of Colvin and Moggridge landscape architects as a main focus.

The body of the thesis is a detailed archival study of three projects by Colvin and Moggridge, each involving the large scale *in situ* conservation and presentation of archaeological resources within a landscape. The projects are the White Horse of Uffington, the Brenig Reservoir, and Knole Park. Each of these is presented separately and consecutively in Chapters 2, 3, and 4.

In Chapter 5, for discussion purposes, a comparison is made of past and proposed solutions for the management of the celebrated site of Stonehenge. The concluding chapter reviews the success of the landscape architects in achieving solutions of best balance in the three case studies. The thesis concludes by supporting its opening contention that landscape architects are capable of making a valuable contribution to archaeological resource management.

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## Chapter One

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### *Introduction: The Thesis Contention*

The archaeological resources of a particular culture may be defined as deriving from an accretion of relics, remnants and fragments of the material world of that culture in times past, and surviving into the present<sup>1</sup>. These resources are never total, firstly by reason of their fragmentary nature, and secondly because the archaeological record is continually being added to<sup>2</sup>. But within their incompleteness at any one time, a culture endeavours to use them as a base for understanding the past, and helping to place the present<sup>3</sup>. The science of this understanding is archaeology<sup>4</sup>.

Archaeology (*arkhaio*, *arkhaios* -Gk: ancient, primitive and *logia* -Lt, *logos* -Gk: word, reason, discourse or science), as a scientific study, is primarily concerned with the revelation of Man's prehistory by site investigation, excavation, analysis and interpretation<sup>5</sup>. Over the last thirty years it has widened its scope to include site studies of more recent times<sup>6</sup>, employing the same techniques and methodologies to supplement recorded data<sup>7</sup>. Archaeologists are thus increasingly ambivalent in

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<sup>1</sup>Lipe W. D. *Value and Meaning in Cultural Resources* in Cleere H. (Ed.) **Approaches to the Archaeological Heritage**, Cambridge University Press, 1984, Cambridge, p.1

<sup>2</sup>Fowler P. J. *Archaeology, the Public and the Sense of the Past* in Lowenthal D. and Binney M. (Ed.) **Our Past Before Us: Why Do We Save It**, Maurice Temple Smith Ltd., 1981, London, p.56; and Lipe W. D. *op. cit.*, pp.1-2; also see Lynch K. **A Theory of Good City Form**, The MIT Press, 1981, Massachusetts, pp.258-260; and Lynch K. **What Time is This Place**, The MIT Press, 1972, Massachusetts, pp.29-64

<sup>3</sup>See Lowenthal D. **The Past is a Foreign Country**, Cambridge University Press, 1985, Cambridge for a comprehensive analysis of the value, meaning and current societal attitudes to the tangible past; and Lowenthal D. and Binney M. (Ed) *op. cit.* for an evaluation of the material past and its preservation; also see Lynch K. (1972) *op. cit.* for a critical analysis of the environmental significance of the material past within the dynamism of past, present and future.

<sup>4</sup>Darvill T. C. **Prehistoric Britain**, B. T. Batsford Ltd. 1987a, London, pp.13-27 and pp.185-193; Greene K. **Archaeology: An Introduction**, B. T. Batsford Ltd., Rev. Ed., 1995, London, pp.159-184; and Renfrew C. and Bahn P. **Archaeology: Theories Methods and Practice**, Thames and Hudson Ltd., 1994, London, pp.9-14

<sup>5</sup>**The New Encyclopaedia Britannica**, 15th Ed., Encyclopaedia Britannica Inc., 1991, Chicago and London, Macropaedia, vol.20, pp.574-582; Crystal D. (Ed.) **The Cambridge Encyclopaedia**, 2nd Ed., Cambridge University Press, 1994, Cambridge, p.81; and **The Oxford English Dictionary**, 2nd Ed., Oxford University Press, 1989, Oxford, vol.1, p.608

<sup>6</sup>See for example Crossley D. **Post Medieval Archaeology in Britain**, Leicester University Press, 1990, London

<sup>7</sup>The New Encyclopaedia Britannica (*op. cit.*) lists archaeology as an ancillary field of the study of history and describes: "*..but from the eighteenth century onward (archaeology) has come to*

interpreting the term 'ancient', and this harks back to the beginnings of the science in the seventeenth century as an interest primarily of antiquarians<sup>1</sup>.

Archaeology today is a broad field of study which overlaps and involves in its process many other related disciplines, from social sciences such as anthropology and cultural or historic geography to natural sciences like geomorphology, palaeontology, plant and animal ecology, geophysics and biochemistry. Its emphasis has clearly shifted away from its former preoccupation with the study of the prehistoric past to a more wider and systematic approach known as processual archaeology. This aims to explain the process of change and evolution of the human material culture and its environment throughout its known history, by the study of the ways in which the past peoples have inhabited, used and shaped the environment to its present form. As such, the subject range of modern archaeology is no longer confined to the dead and the inert remains of the past, but includes living and changing elements of the environment which carry the imprint of past human use<sup>2</sup>.

Modern British archaeology defines all tangible evidence of the change and evolution of a given cultural environment as archaeological resources, or collectively as an archaeological resource, and the combined expression of the dynamism of this particular cultural setting as a landscape. Archaeological resources are not limited to prehistoric monuments, barrows and earthworks as the conventional understanding of the subject may suggest, for such remains represent only one episode of the long process of change in a given environment and therefore only a part of the resource value of that particular cultural setting. The resources of a given cultural setting should

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*mean the branch of learning that studies the material remains of Man's past.*" Its main objectives are to "place material remains in historical contexts, to supplement what may be known from written sources, and, thus, to increase understanding of the past. Ultimately then, the archaeologist is a historian: his aim is the interpretative description of the past of Man."; Cambridge Encyclopaedia (Crystal D. (Ed.) *op. cit.*) defines archaeology as "the study of past peoples and societies through the systematic analysis of their material remains."; Renfrew C. and Bahn P. (*op. cit.*, pp.9-11) provides a useful comparative description of archaeology as part of anthropology, as part of history and as a science on its own.

<sup>1</sup> See Greene K. *op. cit.*, pp.8-11 and Renfrew C. and Bahn P. *op. cit.*, pp.9-14

<sup>2</sup> *Ibid.*; Saunders argues: "Heritage managers must decide among their objectives in the same way that they preserve monuments. For example, what should the attitude be towards the restoration of missing elements and conjectural reconstructions? It is also important to integrate the whole range of material culture, and not to limit attention to a particular period of the past, nor to a particular class of site and monument. Too often archaeology is seen to be equated solely with prehistory, and with sites and monuments which have deteriorated to such an extent that they survive as ruins, earthworks or, more commonly, as buried sites. Yet, if archaeology is the study of man's material past, and is an adjunct to the fuller understanding of history, then all material change and technological advance at any point in time is grist to our mill" (Saunders A. *Heritage Management and Training in England* in Cleere H. (Ed.) **Archaeological Heritage Management in the Modern World**, Unwin and Hyman Ltd., 1989, London, p.162).

ideally be a diverse and representative sample of archaeological evidence, both inert and living, that evenly exemplifies each successive episode of the evolution of the particular environment<sup>1</sup>.

Identification of this representative sample for a given cultural context requires the study and interpretation of the particular evidence within a theoretical working framework relevant and valid in the particular cultural context<sup>2</sup>. Such a framework inevitably makes value judgements and these express the resources on which they are based in a working order of importance<sup>3</sup>.

A working order of importance reflects a management process which site by site is concerned with the study, preservation, conservation and presentation of archaeological remains<sup>4</sup>. Modern archaeology refers to this process as Archaeological Resource Management, a professional approach that has been developing within British archaeology since the early 1980's<sup>5</sup>. It reflects similar developments elsewhere and referred to variously as Public Archaeology, Conservation Archaeology, Archaeological Heritage Management and, most notably, Cultural Resource Management that developed in the USA during the early 1970's and subsequently became the basis for the relevant US federal government legislation<sup>6</sup>. The essence of archaeological resource management is that it is an objective process of identification, evaluation and conservation of archaeological resources in a productive and dynamic balance with other socio-economic needs<sup>7</sup>.

Fundamental to this management is a recognition that it must be funded, and secondly that such funds as are available are very rarely sufficient to allow the total resource at any time to be fully revealed, evaluated, conserved and presented<sup>8</sup>.

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<sup>1</sup>Darvill T. C. **Ancient Monuments in the Countryside: An Archaeological Management Review**, Historic Buildings and Monuments Commission for England, 1987b, London, pp.1, 4, 6-7, 13, 25, and 164-169

<sup>2</sup>Renfrew C. and Bahn P. *op. cit.*, pp.22-148; Greene K. *op. cit.*, pp.101-174; and Darvill T. C. (1987a) *op. cit.*, pp.13-27

<sup>3</sup>Darvill T. C. (1987b) *op. cit.*, pp.164-167; Lipe W. D. *op. cit.*, pp.1-11; and Schaafsma C. F. *Significant Until Proven Otherwise: Problems Versus Representative Samples* in Cleere H. (Ed.) (1989), *op. cit.*, pp.38-51

<sup>4</sup>Darvill T. C. (1987b) *op. cit.*, p.viii and pp.25-31

<sup>5</sup>Darvill T. C. (1987b) *op. cit.*, p.4; and Greene K. *op. cit.*, p.175

<sup>6</sup>Cleere H. *Introduction: The Rationale of Archaeological Heritage Management* in Cleere H. (Ed.) (1989), *op. cit.*, pp.1-19; and Fowler D. D. *Cultural Resource Management* in Schiffer M. B. (Ed.) **Advances in Archaeological Method and Theory**, Academic Press Inc., vol. 5, 1982, New York, pp.1-50

<sup>7</sup>Darvill T. C. (1987b) *op. cit.*, pp.1-4 and pp.25-31

<sup>8</sup>Cleere H. (1989) *op. cit.*, pp.10-15; and Lipe W. D. *op. cit.*, pp.6-9



At one extreme, for example, archaeologists may be involved in an emergency or 'saving' dig, perhaps in the path of a major engineering works, and offering no opportunities for later *in situ* conservation and presentation<sup>1</sup>. At the other extreme, a site may be excavated within a carefully surveyed wider context which requires the fullest possible *in situ* presentation in order to demonstrate its significance within a landscape<sup>2</sup>.

In such latter instances it is the contention of this thesis that, in order to do full justice both to their own and all other resources, the archaeologists accept the imperative of working with landscape architects -an imperative year by year more and more important within the close confines and ever more crowded conditions of Great Britain<sup>3</sup>.

Landscape, for our purposes, is a perceived cultural set,<sup>4</sup> which exists only in the mind. Practically, it is the aggregate experience of our daily being, expressed in a range of spatial preferences<sup>5</sup>. Landscape design, as practised by landscape architects,

<sup>1</sup>Rescue Archaeology Excavation, as this practice is popularly known, is no longer a preferred option in modern archaeology, and is applied only as a last resort under exceptional circumstances, as it destroys the relationships that exist between various components of a resource and its environment (Cleere H. (1989) *op. cit.*, pp.11-12; and Darvill T. C. (1987b) *op. cit.*, pp.36-37). Ideologically any form of excavation has become questionable within the context of archaeological resource management (Cleere H. (1989) *op. cit.*, pp.11-12) firstly, as *in situ* conservation is the primary objective of such management (Kristiansen K. *Perspectives on the Archaeological Heritage* in Cleere H. (Ed.) (1989) *op. cit.*, pp.26-29) and secondly, as information obtainable with non-exploitative and non-destructive technology available at present may only be a fraction of what may be possible in the future, considering the speed at which technologies applicable to archaeology are advancing (Fowler P. J. *op. cit.*, pp.56-62; and Schaafsma C. F. *op. cit.*, pp.38-51).

<sup>2</sup>The primary objective of Archaeological Resource Management (Darvill T. C. (1987b) *op. cit.*, pp.4-5; and Kristiansen K. *op. cit.*, pp.23-29); also see Kristiansen K. *Denmark* in Cleere H. (Ed.) (1984) *op. cit.*, pp.21-36 for a critical review on the long established such model of conservation in Denmark, perhaps the best model for archaeological resource management available anywhere in the world to date (Cleere H. (1989) *op. cit.*, p.13).

<sup>3</sup>Beresford M. and Aitchison J. A. *A Professional Role in Landscape Protection, Landscape Design*, No. 201, June 1991, p.23; Coupe M. and Fairclough G. *Protection for Historic and Natural Landscapes*, *ibid.* pp.24-30; and Saunders A. *op. cit.*, pp.153-163

<sup>4</sup>This definition is based on the work of perceptual psychologists like Sacks (see Sacks O. *The Man Who Mistook His Wife for a Hat*, Pan Books, 1986, London; also see Duncan J. *The City as Text, The Politics of Landscape Interpretation in the Kandy Kingdom*, Cambridge University Press, 1990, Cambridge for an exhaustive analysis of the current cultural geographical perspective of the landscape as a signifying system of cultural expression.

<sup>5</sup>See Bender B. *Landscape - Meaning and Action* in Bender B. (Ed.) *Landscape: Politics and Perspectives*, Berg Publishers, 1993, Oxford, pp.1-17 for a synthesis of contemporary views on landscape as imagined, created, appropriated and contested by human imagination; for a comprehensive analysis of the development of the concept of landscape see Olwig. K. R. *Sexual Cosmology* in Bender B. (Ed.) (1993) *op. cit.*, pp.307-343; Cosgrove D. *Landscape and Myths* *ibid.* pp.281-303 deals with the significance of myth and belief systems in shaping and perceiving landscape. For a thorough analysis of the visual perception of landscape see Appleton J. *The Experience of Landscape*, John Wiley & Sons Ltd., 1975, London; and Jackle J. A. *The Visual Elements of Landscape*, The University

is concerned with identifying these preferences in a particular, shared context. It strives to achieve a long term best balance, a balance of the resources of the biosphere and the earth's crust, the natural and the manmade, the renewable and the non renewable, in a preferred state<sup>1</sup>. Archaeological resources are self-evidently manmade and non-renewable<sup>2</sup>.

Britain's archaeological resources are as rich and diverse as any in Northern Europe. They reflect the patterns of Man's colonisation, settlement and exploitation of the land mass over some quarter of a million years<sup>3</sup>. Earliest traces of man in Britain date from around 400,000 years before the present. These traces however are fragmentary and have rarely been found associated with any substantial evidence of human activity<sup>4</sup>. Sites with more substantial and *in situ* preserved evidence range from about 250,000 years ago. These are cave dwellings such as Westbury sub-Mendip, Somerset or Kent's Cavern in Devon<sup>5</sup>, and riverside locations such as the Thames valley at Swanscombe, Kent<sup>6</sup> or lake side dwellings such as the site at Hoxne in Suffolk<sup>7</sup>. These represent the farthest end of the range of archaeological remains in

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of Massachusetts Press, 1987, Amherst. A theoretical analysis of the cognitive perception of landscape is presented in Kaplan S. and Kaplan R. (Ed.) **Humanscape: Environments for People**, Ulrich's Books Inc., 1982, Michigan; and a review of methods and practice in environment behaviour research, as applied in landscape architecture and environmental planning and design is given in Bechtel R. B. *et al.* (Ed.) **Methods in Environmental and Behavioural Research**, Van Nostrand Reinhold Co., 1987, New York; for a more architectural and planning point of view see Lynch K. **Managing the Sense of the Region**, The MIT Press, 1976, Massachusetts, pp.30-38.

<sup>1</sup> See Laurie M. **An Introduction to Landscape Architecture**, American Elsevier Publishing Co., 1975, New York for a comprehensive coverage of the fundamentals of landscape architecture; and Bell S. **Elements of Visual Design in the Landscape**, E and FN Spon Ltd., 1993, London for more recent approaches; also see Turner T. **Landscape Planning**, Century Hutchinson Ltd., 1987, London for landscape planning; Hunter J. M. **Land into Landscape**, George Godwin, 1985, London for an exhaustive essay on the development of landscape design theory; and Stiles R. *In Search of a Definition, Landscape Design*, No. 234, October 1994, pp.44-48 for an analysis of the current debate on professional status and practice of landscape architecture.

<sup>2</sup> Darvill T. C. (1987b) *op. cit.*, p.1; Fowler D. D. *op. cit.*, p.1; Lipe W. D. *op. cit.*, p.6; and Schaafsma C. F. *op. cit.*, p.44

<sup>3</sup> Darvill T. C. (1987b) *op. cit.*, p.164; and Fleure H. J. and Davies M. **A Natural History of Man in Britain**, The Fontana New Naturalist, Rev. Ed., 1971, London, pp.44-45

<sup>4</sup> Much of these early traces are Clactonian and Acheulian tools left behind by hunter-gatherers in Anglian and Hoxnian interglacial periods, 250,000 to 400,000 years before the present. Each successive glacial episode has wiped off earlier traces of man and carried away tools and objects to far away locations. These finds generally are museum artefacts, not amounting to resources worthy of preservation *in situ*. Yet their archaeological importance is self-evident from the fact that place names of the sites in Britain where they were found have given rise to names in the archaeological time scale (e.g. Hoxnian Interglacial after the site of Hoxne in Suffolk and Clactonian Tradition after Clacton-on Sea, Essex) (Darvill T. C. (1987a) *op. cit.*, pp.29-31; and Fleure H. J. and Davies M. *op. cit.*, pp.44-45).

<sup>5</sup> Darvill T. C. (1987a), *op. cit.*, p 31

<sup>6</sup> Fleure H. J. and Davies M. *op. cit.*, p. 45

<sup>7</sup> Darvill T. C. (1987a) *op. cit.*, p.31

Britain. At the near end, towards the present, are remains of the twentieth century activities such as industrial structures, defence installations, railways, canals and Bridges<sup>1</sup>. Such recent remains exemplifying Britain's momentous socio-economic history in the last three hundred years are archaeologically as valuable as the remains of the prehistoric past, as they are very much a part of the cultural identity of these islands<sup>2</sup>.

A very wide variety of archaeological relics represent the successive episodes of Britain's complex and intriguing land history<sup>3</sup>, beginning with the most conspicuous monuments and earthworks of prehistory, such as the henges, barrows, cursii and hillforts of the Neolithic and the Bronze and Iron ages, and the Roman settlements and defence structures which followed. These are the features that anyone may recognise and accept as essentially archaeological in the landscape. However, for every such visible feature there may be ten times as many inconspicuous remains, either buried beneath the ground surface or hidden from view, such as the timber trackways, settlements and human remains found in the Somerset Levels or Cambridgeshire Fens<sup>4</sup>.

This does not only apply to prehistoric remains, for much of the medieval and post-medieval field and settlement patterns are also scarcely visible above ground<sup>5</sup>. These medieval and post-medieval remains are some of the archaeologically least studied and understood in Britain, as a result of the bias towards prehistory that prevailed within archaeology and the division that existed between archaeology and historical geography until the 1970's<sup>6</sup>. A diverse group of medieval and post-medieval features have come to be considered therefore as historic rather than archaeological, at both academic and policy levels<sup>7</sup>. These may include our so called historic buildings, historic parks and gardens, historic towns and historic battlefields and many other sites

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<sup>1</sup>See Crossley D. *op. cit.*

<sup>2</sup>Hareven T. K. and Langenbach R. *Living Places, Work Places and Historical Identity* in Lowenthal D. and Binney M. (Ed.) *op. cit.*, pp.109-123

<sup>3</sup>Darvill T. C. (1987a), *op. cit.*, p 13; and Fleure H. J. and Davies M. *op. cit.*

<sup>4</sup>Darvill T. C. (1987a), *op. cit.*, p 13

<sup>5</sup>See Cantor L. M. **The English Medieval Landscape**, Croom Helm Ltd., 1982, London; Darby H. C. (Ed.) **A New Historical Geography of England**, Cambridge University Press, 1970, Cambridge; Hoskins W. G. **The Making of the English Landscape**, Hodder and Stoughton Ltd., Rev. Ed., 1977, London; Millman R. N. **The Making of the Scottish Landscape**, B. T. Batsford Ltd., 1975, London; and Rackham O. **The History of the Countryside**, J. M. Dent & Sons Ltd., 1986, London

<sup>6</sup>See Crossley D. *op. cit.*, pp.1-6 for a critical review of the effects of these disciplinary specialisations and the influence of Hoskins and his successors within historical geography in bridging this gap, which ultimately resulted in the highly empirical branch of archaeology known as landscape archaeology; also see Green K. *op. cit.*, pp.51-53

<sup>7</sup>Cleere H. (1984) *op. cit.*, p.61; Fowler P. J. *op. cit.*, pp.56-69; and Saunders A. *op. cit.*, p.162



of historical importance<sup>1</sup>. Ancient woods, for example, and hedgerows and field boundaries also come under this category. Then there are historic burial grounds, some of which are still in use, and war memorials and other commemorative structures, all of which remain historic in relevance. Finally, mention must be made of the fine line dividing the valued archaeological and historic remains and those that are considered derelict or disused, such as former industrial sites, collieries, mineral waste mounds and abandoned inner-city areas<sup>2</sup>. All of these may be looked upon today as capable of yielding archaeological evidence valuable in the interpretation and management of their sites as modern landscapes.

It is a truism that nothing within the confines of this small island and its outliers today remains untouched by the hand of Man<sup>3</sup>. It is also a truism that this knowledge and understanding has been given to us by the science of archaeology, in helping to express the continuum of landscape history<sup>4</sup>.

Management of any resource begins with its identification and listing in the rank order previously mentioned<sup>5</sup>. The first footholds of protection of archaeological relics in Britain came towards the end of the last century. In 1882 the concept of "ancient monument" first entered English law, with the passing of the Ancient Monuments Protection Act and to allow the identification and scheduling of ancient earthworks. Soon after, the National Monuments Commission was established; the scheduling was greatly extended in range; and the principle of guardianship was established<sup>6</sup>.

Further legislation in 1900 and 1910 was consolidated in 1913<sup>7</sup> to allow the scheduling of any ancient feature deemed of national importance, but excluding historic buildings still in use. The separate listing of such buildings began in 1932 with the Town and Country Planning Act and this was further consolidated in 1944 and in

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<sup>1</sup>Department of The Environment and Department of National Heritage, **Planning Policy Guidance: Planning and the Historic Environment**, P.P.G. 15 , HMSO, 1994, London

<sup>2</sup>See Moss G. **Britain's Wasting Acres**, The Architectural Press Ltd., 1981, London

<sup>3</sup>Darvill T. C. (1987a), *op. cit.*, p 164; IUCN, **Protected Landscapes; The United Kingdom Experience**, IUCN, 1987, Gland, pp.4-6; and Wainwright G. J. *The Management of the English Landscape* in Cleere H. (Ed.) (1989), *op. cit.*, p.164

<sup>4</sup>Darvill T. C. *op. cit.*, p.164; the science of archaeology here includes the large contribution historical geography has made towards this knowledge.

<sup>5</sup>Cleere H. (1989) *op. cit.*, p.11

<sup>6</sup>Cleere H. *World Cultural Resource Management: Problems and Perspectives* in Cleere H. (Ed.) (1984) *op. cit.*, pp.126-127; Darvill T. C. (1987b) *op. cit.*, pp.3-4, 32-39 and p.167; Ross M. **Planning and the Heritage**, E and FN Spon, 1991, London; and Saunders A. *op. cit.*

<sup>7</sup>Ancient Monuments Consolidation and Amendment Act, 1913



1953 together with the provision of Central Government grant aid. The Civic Amenities Act of 1967 widened the scope of listing to encompass the designation of Conservation Areas; and in 1979 the concept of such areas was applied to whole areas of archaeological importance in the Ancient Monuments and Archaeological Areas Act<sup>1</sup>. On paper at least this looks an impressive and orderly sequence of legislation. In practice much of it was a rearguard action against the vested interests of private landowners. By 1984 there were some 20,000 scheduled ancient monuments in Great Britain as a whole, and a further 180,000 sites identified as of likely value but still awaiting detailed survey<sup>2</sup>.

There are in Britain today some 36,000 scheduled sites of archaeological importance, and a further 220,000 sites identified as of likely resource importance and worthy of investigation<sup>3</sup>. The accumulated knowledge underlying this scheduling is little more than two centuries old<sup>4</sup>. Like many of the other modern sciences archaeology owes its beginnings to a few passionate amateurs and dedicated gentlemen roused in their curiosity by relics like the ruins of Badbury, the cairns and souterrains of Maes Howe and the standing stones of Brodgar, Stenness and Stonehenge. As a professional and learned discipline, archaeology expanded rapidly during the nineteenth century in the wake of empire and far beyond the confines of the island, to the Mediterranean, to Egypt, the Middle East, and the Indian subcontinent as an extraordinary range of educated people gave it time from their first occupations as surveyors, soldiers, missionaries and civil servants and many other walks of life. It is therefore no accident that Britain was among the first modern nation states to recognise and establish archaeology as a learned pursuit and professional discipline<sup>5</sup>.

It is also no accident that the germ of the discipline and the profession of landscape architecture as a branch of design should have been prompted in Britain

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<sup>1</sup>Ancient Monuments and Archaeological Areas Act, 1979 as amended by National Heritage Act, 1983

<sup>2</sup>Cleere H. in Cleere H. (Ed.) (1984) *op. cit.*, pp.126-127; Darvill T. C. (1987b) *op. cit.*, pp.3-4, 32-39 and p.167; Ross M. *op. cit.*; and Saunders A. *op. cit.*; a rapid assessment by the Historic Buildings and Monuments Commission for England in 1984 revealed records for some 650,000 sites in England alone. Although these records include many single chance finds, value of these sites cannot be judged without detailed field surveys. The figure may also be an underestimate of what must actually exist. This gives an idea of the immense task involved in taking the first step towards archaeological resource management in Britain (Darvill T. C. (1987b) *op. cit.*, p.167).

<sup>3</sup>1982-84 figure for England, Wales and Scotland individually updated March 1996. The figure for recorded sites is an order of the magnitudes best guessed by civil servants as the process of recording is incomplete, but it excludes single find sites (Based on information from English Heritage, National Monument Records Centre for England, CADW for Wales and Historic Scotland).

<sup>4</sup>Cleere H. (1984) *op. cit.* and Hunter M. *The Preconditions of Preservation: A Historical Perspective* in Lowenthal D. and Binney M. (Ed.) *op. cit.*, pp.22-31

<sup>5</sup>See Greene K. *op. cit.*, pp.8-36; Hunter M. *op. cit.*; and Renfrew C. and Bahn P. *op. cit.*, pp.17-40

nearly a century ago by Patrick Geddes, and followers such as Thomas Mawson, who saw the need for the 'best balance' previously referred to, within an ever increasing competition between our land resources<sup>1</sup>.

My own interest in this matter of 'best balance' developed as I extended my first training in natural science and began a study of landscape design at Edinburgh in 1987. Again and again as I visited sites of archaeological interest in Britain, and as I recalled those I knew in my own land of Sri Lanka, I became aware, as a landscape designer, of the clumsy and often scarcely more than amateur way in which they had been presented *in situ*, as evidence of our cultural development; of lost opportunities in controlling the physical approach to them; in the heightening of their drama through simple changes in their circulation and access planning; of subtleties of detailed treatment such as planting in improving all of these, of better expressing their sites in relation to others nearby of connected interest and within a broader landscape; and last, but by no means least, of the great need to understand and define each site's essential spirit of place as a basis for communicating and striking a 'best balance'.

I decided that all of these shortcomings justified further study in a doctoral thesis and which would better serve my understanding as a landscape designer when I returned to practice in Sri Lanka. The method of approach to such a study might have been to take selected examples of all of this weak practice and to demonstrate its theoretical improvement with all the smug wisdom of hindsight. But theorising, I decided, was not enough. What I most needed to find was a substantial body of good practice demonstrating my thesis of the imperative need of a close working relationship between archaeologists and landscape designers<sup>2</sup>.

At first I considered searching for this in Sri Lanka, where there is an archaeological resource as rich and diverse as that of Britain and considerably older in its origins. Major sites at Anuradhapura, at Polonnaruwa and Sigiriya offered the kind of scope needed since they had been under investigation by archaeologists since the

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<sup>1</sup>Aldous T. and Clouston B. **Landscape by Design**, William Heinemann Ltd., 1979, London, pp.120-129; and Turner T. *op. cit.*, pp.1-5

<sup>2</sup>At this time no study specifically related to the contention of this thesis was available in Britain, although some progress had been made in the U.S.A. (see for example Austin L. R., Kane T., Melnick R. Z. and Turner S. (Ed.) **The Yearbook of Landscape Architecture: Historic Preservation**, Van Nostrand Reinhold Co., 1987, New York). It was not until very recently that similar studies began to appear from landscape architecture at academic level in Britain (see for example Farmer A. **Historic Sites in their Landscape Setting: Designing for Recreation and Tourism**, M LA Thesis, University of Manchester, 1993, Manchester; and Onisiforidou N. **Landscape Architecture in the Conservation of Urban Archaeological Resources; The York Experience**, M LA Thesis, University of Edinburgh, 1996, Edinburgh).

1890s, firstly by a small nucleus of largely self-taught British field archaeologists working within the colonial Civil Service, and since 1947 and Independence, by a following generation of Sri Lankan nationals trained in London and Leyden. For all the skill and modernity of their work, however, there were two important study disadvantages: firstly, the intrusions and disruptions of the Civil War, and secondly, the limited involvement of landscape architects<sup>1</sup>.

Sri Lankan archaeologists had identified a need to work with landscape architects but had had to use expensive overseas consultants as there are at present only three qualified landscape architects practising in Sri Lanka. All these are fully occupied either in new town planning and urban improvement work or in teaching, and have so far managed only limited involvement with archaeologists, and largely through student projects. The standards achieved here were not considered high enough to form a basis for case study.

Shortly after reaching this conclusion, my attention was drawn to the work in Britain of the long-established landscape practice of Colvin and Moggridge. Here was a firm dating back to the earliest years of the founding of the Landscape Institute and which has a very wide and varied practice extending back some seventy years, and had developed a special interest in projects involving archaeological resources -an interest began by Brenda Colvin, the firm's founder, and continued by her successor Hal Moggridge<sup>2</sup>.

On approach, Mr. Moggridge very readily agreed to make his firm's archives available for study for the first time, and in following the progress and development of case studies specially selected for the purposes of the thesis. Over a study period of some 15 months a short list of possible projects was first drawn up, and from these, three large-scale ones involving archaeologists were selected for detailed examination and discussion as the body of this thesis -The White Horse of Uffington, Brenig Reservoir, and Knole Park.

This thesis, then, is an archival study of these three projects, with an emphasis on the special role of the landscape architect. The body of the thesis presents each of these projects as case studies in the following first three chapters, and the co-ordinating role played by the landscape architects. A fourth chapter then compares and

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<sup>1</sup>See Silva R. *The Cultural Triangle of Sri Lanka* in Cleere H. (Ed.) (1989), *op. cit.*, pp.221-226 for a brief overview of archaeological conservation in Sri Lanka.

<sup>2</sup>See Moggridge H. and Carter C. *Colvin & Moggridge; Profile*, **Landscape Design**, No.164, December 1986, pp.20-22

contrasts the past and present management of the world famous site at Stonehenge and discusses its lack of co-ordinated landscape design. The concluding chapter of the thesis discusses the influence of the landscape architect in achieving solutions of 'best balance'<sup>1</sup>. Over and above this first purpose of the thesis, the three case studies here published in detail for the first time, are a celebration of the skills of one of Britain's best landscape architects.

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<sup>1</sup>Major reports, drawings and other archival material referred to are identified in the text where necessary, and listed in the Bibliography and Appendix.

## ***Chapter Two***

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### ***Uffington White Horse Hill Restoration Scheme***

First of the case studies is the famous White Horse of Uffington, one of Britain's archaeological treasures. In 1970 it was the subject of detailed examination by the landscape architects Colvin & Moggridge as it lay scarred, eroded and degraded under the increasing threats of visitor pressure, arable encroachment and uncoordinated grazing regimes. The following account firstly places the inspirational quality of the White Horse and surrounding resources in an historical context, and then describes the involvement of the landscape architects.

#### **2.1 The Landscape of White Horse Hill: its Making and Archaeological Value**

The White Horse of Uffington in Oxfordshire is one of the best known ancient monuments in Britain<sup>1</sup> and, certainly, one of the strangest of the archaeological resources to have survived from prehistory<sup>2</sup> (fig.2.1). It is a curiously abstract hill figure, about 111 m in length and 32 m in maximum height, carved into the chalk on the northern escarpment of White Horse Hill, the summit of the Berkshire Downs, 11 km north-east of the M4 at Swindon (fig.2.2).

The Berkshire Downs form the central part of the Cretaceous chalk scarp of the Chilterns that extends north-east from Salisbury Plain and the Marlborough Downs in Wiltshire to the Chiltern Hills, which run through Oxfordshire and Buckinghamshire to Bedfordshire<sup>3</sup> (fig.2.2). This long escarpment is one of the two major ridges of land surface that divide the Lowland Zone of England, west of the Jurassic scarp, a major geomorphological and cultural divide in Britain<sup>4</sup>. The rolling hills of the downs,

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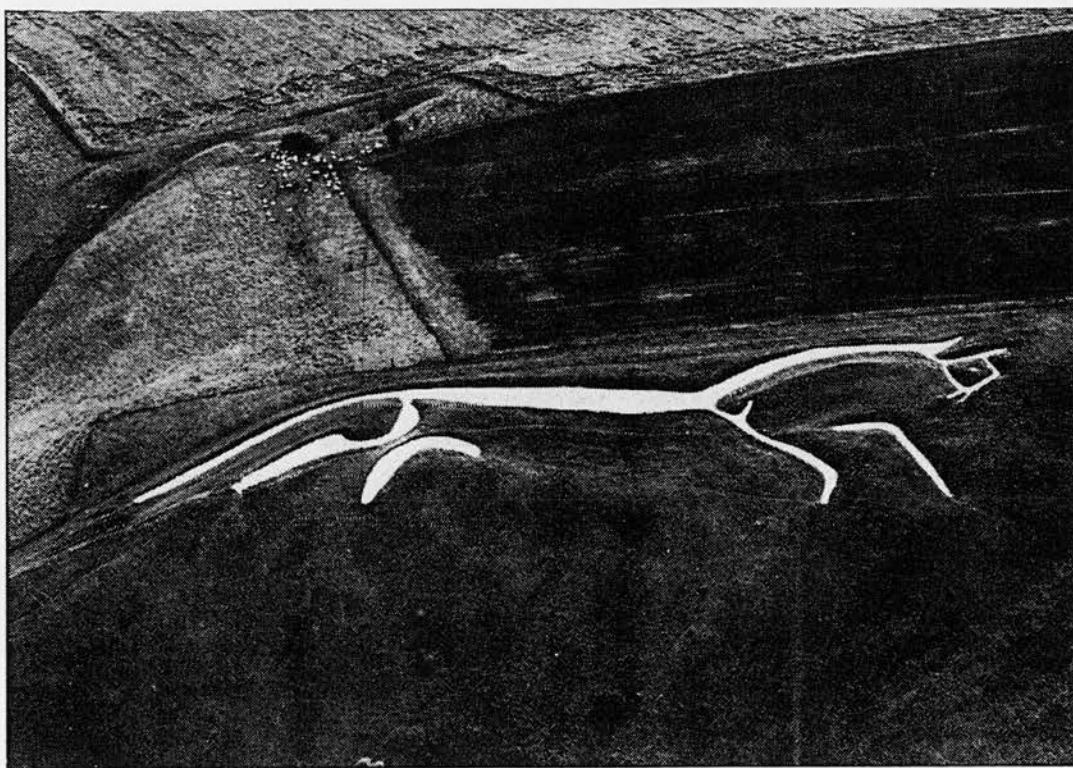
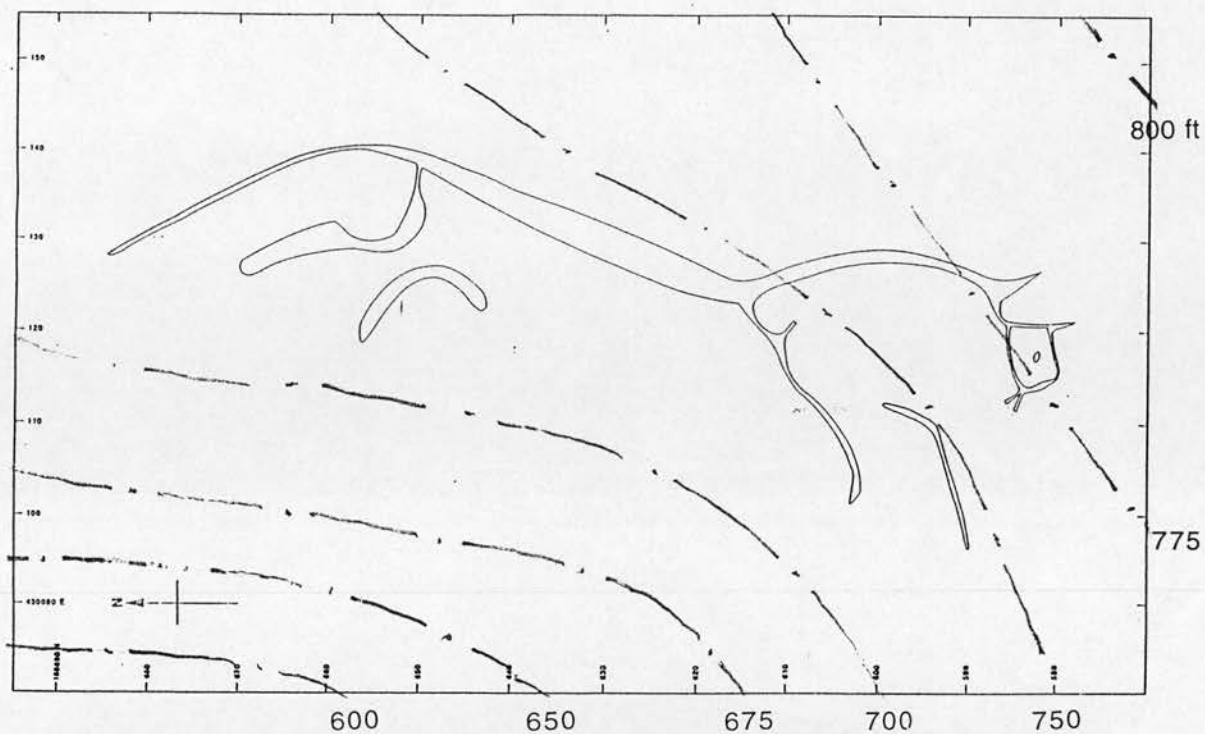
<sup>1</sup>Clayton P. **Guide to the Archaeological Sites of Britain**, B. T. Batsford Ltd., 1986, London, p.78

<sup>2</sup>Dyer J. **Southern England: An Archaeological Guide**, Faber & Faber Ltd., 1973, London, p.15

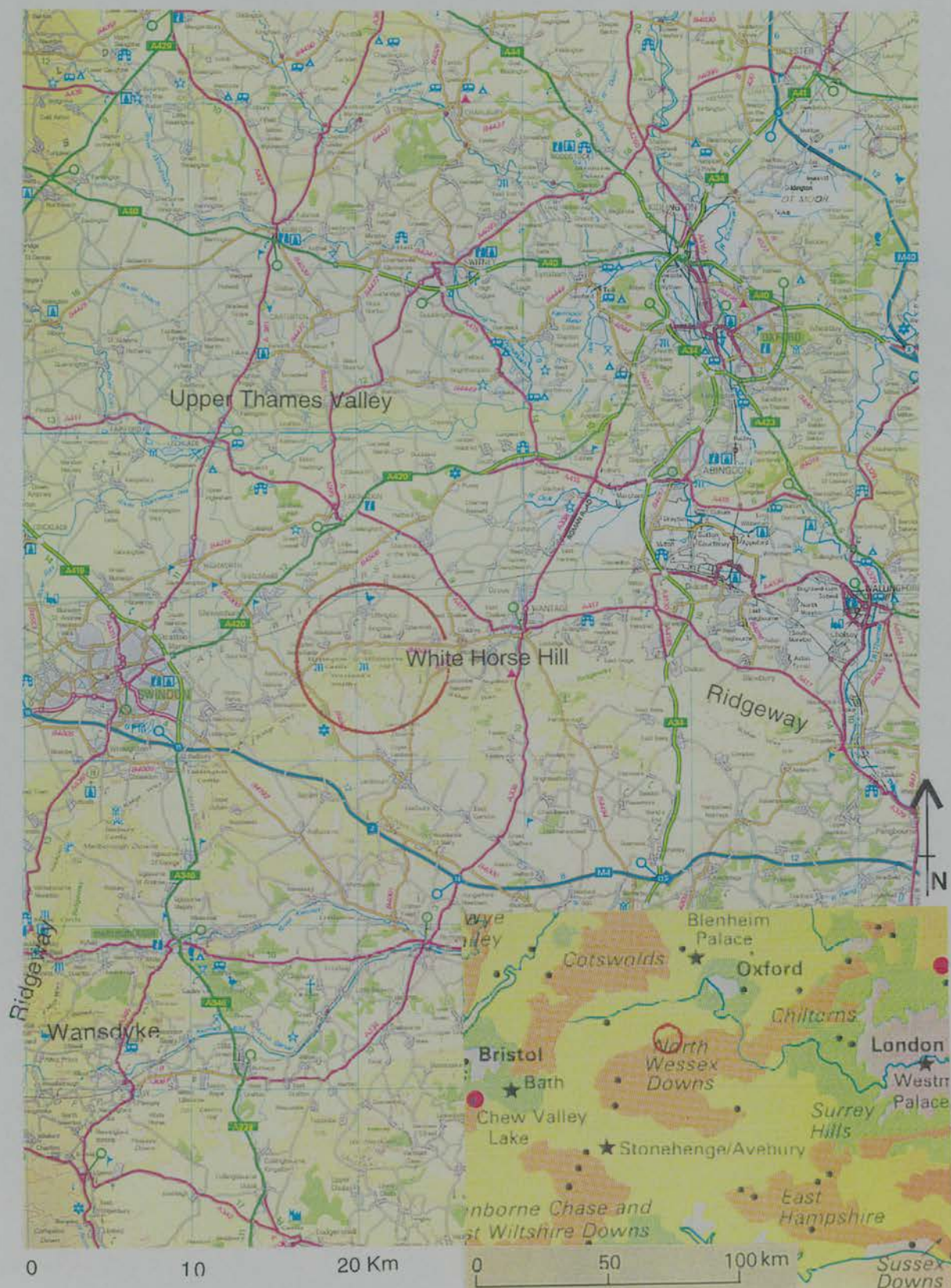
<sup>3</sup>Based on geomorphological information available in cartographic form.

<sup>4</sup>Fleure H. J. and Davis M. *op. cit.*, ch.1; and Rackham O. (1986) *op. cit.*, ch.1





**Fig. 2.1:** Uffington White Horse. Above: Most Recent Measurements of the Hill Figure (Reproduced from Miles D. and Palmer S. *op. cit.*). Below: Recent Aerial View (Reproduced from **The Independent**, 29 August 1993, p.6)



**Fig. 2.2:** Location and Regional Landscape Setting of White Horse Hill on the Berkshire Downs, in Relation to Ridgeway, the Prehistoric Route of Communication and within the North Wessex Downs AONB (Reproduced from Ordnance Survey of Great Britain, Travel Master Series, 1993, Sheet 6; and Oxford University Press, *The New Oxford School Atlas*, 1990, Oxford, p.26).



with steep north facing scarps rising above 200 m OD and gently sloping plateaux to the south, are formed of uplifted, calcareous sedimentary strata deposited in the Lower Mesozoic Era (fig.2.3A). The Berkshire Downs, some 50 km south of the maximum southerly extent of glaciation at White Horse Hill, have been moulded into their smoothly sinuous form entirely by the periglacial and subsequent climatic action and millennia of human use<sup>1</sup>.

Since the Neolithic period, the early settlers of Britain have been ranging along the sparsely wooded, porous, chalky and clay-capped hilltops of the downs searching for flints and grazing their animals<sup>2</sup> (fig.2.3 A and B). Thereby, tramped out solely by the feet of its users and stretching the entire length of the Chilterns scarp is the Ridgeway, one of the oldest routes of communication and trade in Europe that has been continuously used by travellers, from the Neolithic flint traders to cattle drovers in the eighteenth century<sup>3</sup> (fig.2.2). Scattered along the Ridgeway, which begins at Wansdyke north of Devizes and joins the Icknield Way at Goring, are numerous prehistoric monuments and remains ranging from the megalithic stone circle of Avebury to a series of causewayed camps such as Barbury Castle, Uffington Castle and Gore Hill, clearly indicating a pattern of prehistoric settlement and way markers along the route, the White Horse Hill occupying almost exactly the halfway position<sup>4</sup>.

The Neolithic farmers, who settled on Salisbury Plain and the Marlborough Downs and established into the aristocratic trading community which built ceremonial monuments like Stonehenge, spread along the Berkshire Downs and Chilterns, taming the downlands for their rich calcareous pastures and occupying strategic positions with causewayed camps. At the foot of the escarpment they ventured along the streams and tributary rivers that drained into the Thames, clearing the wilderness and developing rich arable fields out of the deep, fertile, loamy-clay deposits of the Upper Thames Valley (fig.2.3A). From these early farmsteads a wealthy culture of hamlets and then villages and market towns evolved over the millennia<sup>5</sup>, transforming the downs and the valley below into a landscape almost entirely man-made in every detail, and therefore of great archaeological interest. It is a rolling and smoothly carved landscape, sweeping for miles north and south of the downs with panoramic views of the countryside in every direction. Set amidst the endless expanse of large fields lined by

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<sup>1</sup>Based on geomorphological information available in cartographic form

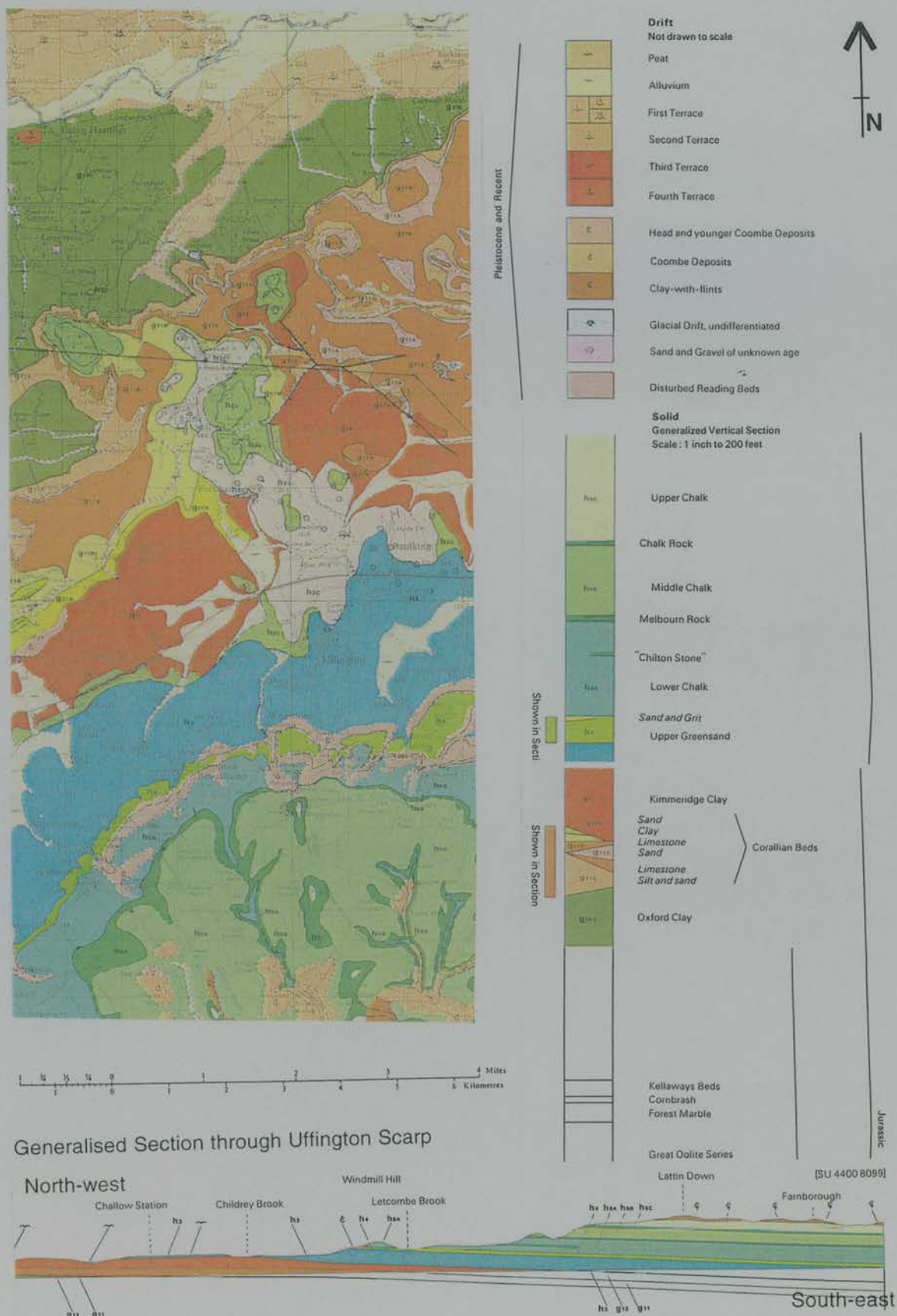
<sup>2</sup>Fleure H. and Davis M. *op. cit.*, p.35 and p.60; and Robertson R. **Dorset to Gloucestershire**, English Heritage, HMSO, 1992, London, p.110

<sup>3</sup>Robertson R. *op. cit.*, p.110; and Ingrams R. **The Ridgeway: Europe's Oldest Road**, R. Ingrams, 1988, London, p.10

<sup>4</sup>Robertson R. *op. cit.*, p.110; and Ingrams R. *op. cit.*, p.34

<sup>5</sup>Fleure H. and Davis M. *op. cit.*, p.35 and p.60





**Fig. 2.3A:** Geomorphological and Pedological Formation of the Region of White Horse Hill. (Based on Geological Survey of Great Britain, Solid/Drift, 1971, Abingdon, Sheet 253)





**Fig. 2.3B:** Typical downland geomorphological profile exposed on White Horse Hill, along foot tracks capped only by clay leached from deposits above at summit of the hill, and therefore poor in flints and quite shallow in depth.

Top: Rapidly weathering upper chalk with reasonably deep soil layers and lush typical downland grass sward with many herbs.

Below: A deep horizon with both upper and middle chalk strata visible, and capped on top by a thin soil layer held by a poor grass sward (scale shown = 140 mm).



thin hedgerows, the legacy of the countryside planning following Enclosure Acts of the eighteenth and nineteenth centuries<sup>1</sup>, are isolated hamlets, villages and towns, picturesque with their characteristic Oolitic limestone buildings and Cotswold-style parish churches, occupying in some cases the exact locations of earlier prehistoric settlements<sup>2</sup>.

The Enclosures which modified much of the medieval features have nevertheless left behind a rich diversity of prehistoric remains, both free-standing and hidden beneath the recent layers of the landscape. It is therefore a landscape for the most part richer in prehistoric archaeological resources than those of later history<sup>3</sup>. The parishes along the Berkshire Downs still share boundaries that have been identified as recorded in the Anglo-Saxon charters; these long, narrow strips, set out at right angles to the downs, appear to have developed through the need to share all types of land among the parishes, and may have followed prehistoric ownership boundaries<sup>4</sup> (fig.2.4). The downs and the valley below therefore constitute a visibly multi-layered landscape, where the layers of recent change overlies or encircle features of the distant past, and where change since the nineteenth century has been largely due to the transformation of traditional downland grazing practices to intensive arable farming<sup>5</sup>. It is a landscape of fairly uniform character, diversified and made beautiful almost solely by the remaining ancient features and semi-natural elements. The whole expanse of the downlands of the Chiltern scarp, including a stretch of the valley running parallel, was designated in the 1980s as the North Wessex Downs Conservation Area, the 24th Area of Outstanding Natural Beauty in England<sup>6</sup> (fig.2.2). The designation, it is hoped, may help prevent further erosion of archaeological and natural resources of this prominent land-form from arable encroachment.

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<sup>1</sup>Rackham O. (1986) *op. cit.*, pp.4-5

<sup>2</sup>Fleure H. and Davis M. *op. cit.*, pp.110-140 and ch.12

<sup>3</sup>Rackham O. (1986) *op. cit.*, pp.4-5

<sup>4</sup>*Ibid.*, pp.19-20

<sup>5</sup>For example, compare the area around the White Horse in figures 2.6 and 2.7: the field pattern along the escarpment remains virtually the same in the 1973 Ordnance Survey map, although in reality much of the land uses within the same enclosure pattern has changed to permanent and intensive arable farming since the time of the earlier map. This change has been quite rapid for it has taken less than half a century to transform a rich downland sward managed over millennia to a patchwork of crop and soil patterns.

<sup>6</sup>AONB designation by local authorities under the provisions of Civic Amenities Act 1967 and Section 277 of Town and Country Planning Act 1977 (Pearce G. *et al.* **Conservation Areas in London and the South-East**, English Heritage, 1990, London, p.vii, p.xxiii, p.xxviii and p.93).



The White Horse Hill, being the highest point of the Berkshire Downs, occupies a commanding position amidst this wide open landscape. From its summit at 261 m OD panoramic views of the countryside expand in every direction, stretching as far as the eye can see. The finest view is the northerly one, with the whole expanse of the Vale of White Horse and Upper Thames Valley filling the foreground, and with the Cotswold Hills in the north and the Chilterns in the east forming the backdrop (fig.2.2 and 2.5). Correspondingly, the White Horse Hill may be seen from numerous eminences of the Upper Thames Valley and from the southerly slopes of the Cotswold Hills and some northerly escarpments of the Chiltern Hills. The strategic position of White Horse Hill above the surrounding landscape and its centrality on the ancient trading route of the Ridgeway seem to have been the main reasons for the prehistoric communities' choice of it as a prominent focus of settlement and activity. Occupying the summit of the hill, next to the Ridgeway, are the fortifications of the Uffington Castle, the figure of White Horse sprawling just 10 m in level below on the hillside. Lying between the castle and the horse are two prehistoric burial mounds and other unexcavated sites of likely importance<sup>1</sup>. Among the ancient features scattered in the vicinity is Wayland's Smithy, the well known chambered long-barrow of Neolithic origin, 2 km west along the Ridgeway and much associated with the history of White Horse Hill by legend as well as contemporary archaeological evidence<sup>2</sup> (fig.2.6 cf. fig.2.7).

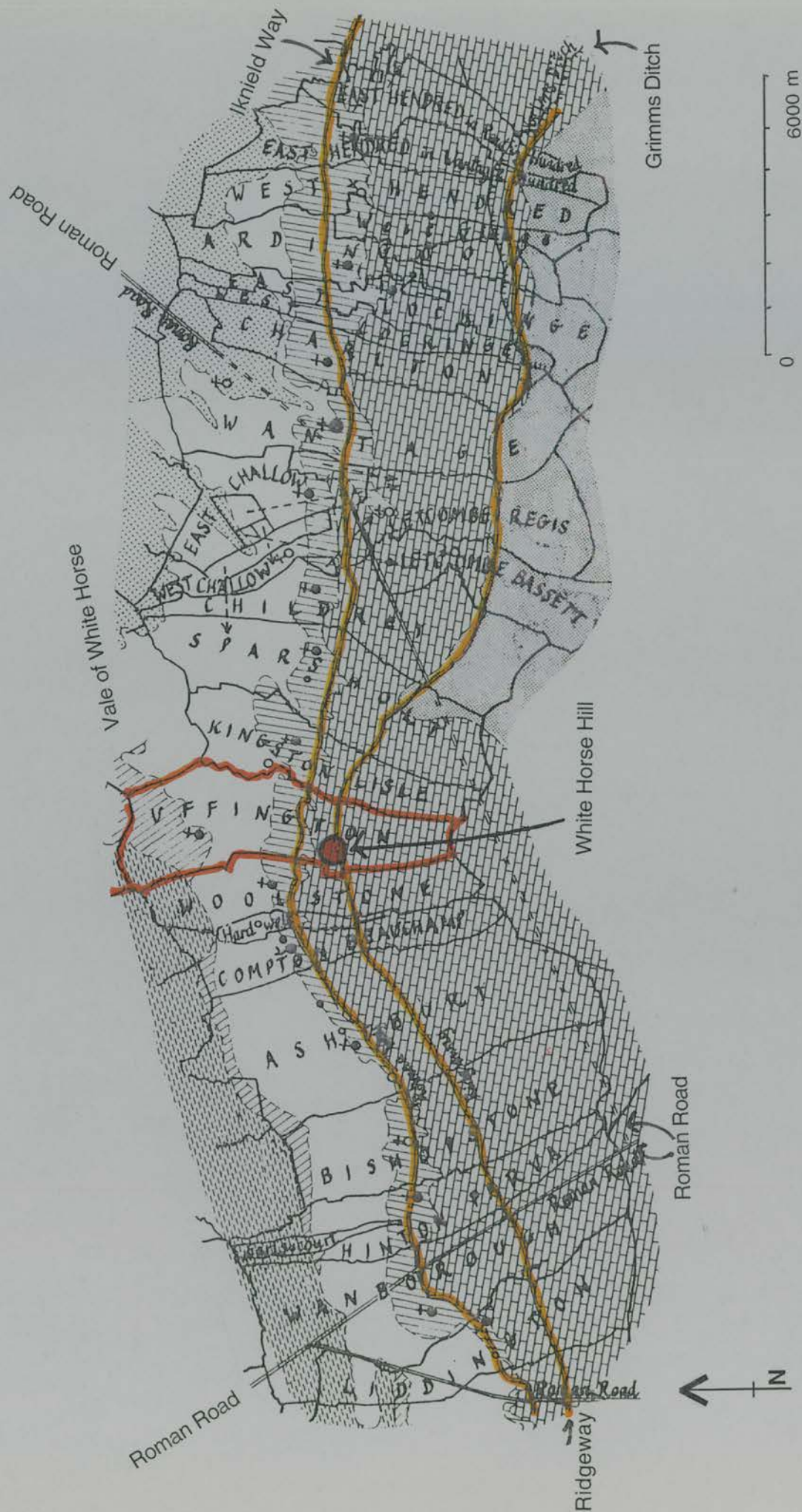
The mysterious figure of the White Horse itself is carved into the chalk along the crest of a 20 to 30 degree slope which rises sharply some 95 m above the dry valley below and faces north-west (fig.2.1, 2.6 and 2.8). The disjointed shape of the figure sprawls along the crest that falls north-eastwards, sharply at first, gently then and sharply again, making the head and the neck of the figure high above the body and its tail and limbs falling abruptly below (fig.2.8). The result of this curious positioning of the figure is that its full splendour cannot be appreciated from anywhere near on the hill or the hill-foot below; as Paul Nash<sup>3</sup> put it in 1949: "*Seen on its own hill it becomes an affair of violent foreshortenings or tapering perspectives more or less indecipherable.*" Viewed from a distance of 3 km or more from the hill, the fragmented forms merge into the wondrous and abstract, dragon-like shape of the horse with its

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<sup>1</sup>Miles D. and Palmer S. Report On Archaeological Studies at White Horse Hill (1980-1995), Oxford Archaeological Unit, 1995 produced for a joint press release by The National Trust, English Heritage and Oxford Archaeological Unit; see Miles D. and Palmer S. *White Horse Hill*, **Current Archaeology**, No.142 (vol.xii, No.10), March / April 1995, pp.372-378 for an edited version of the report.

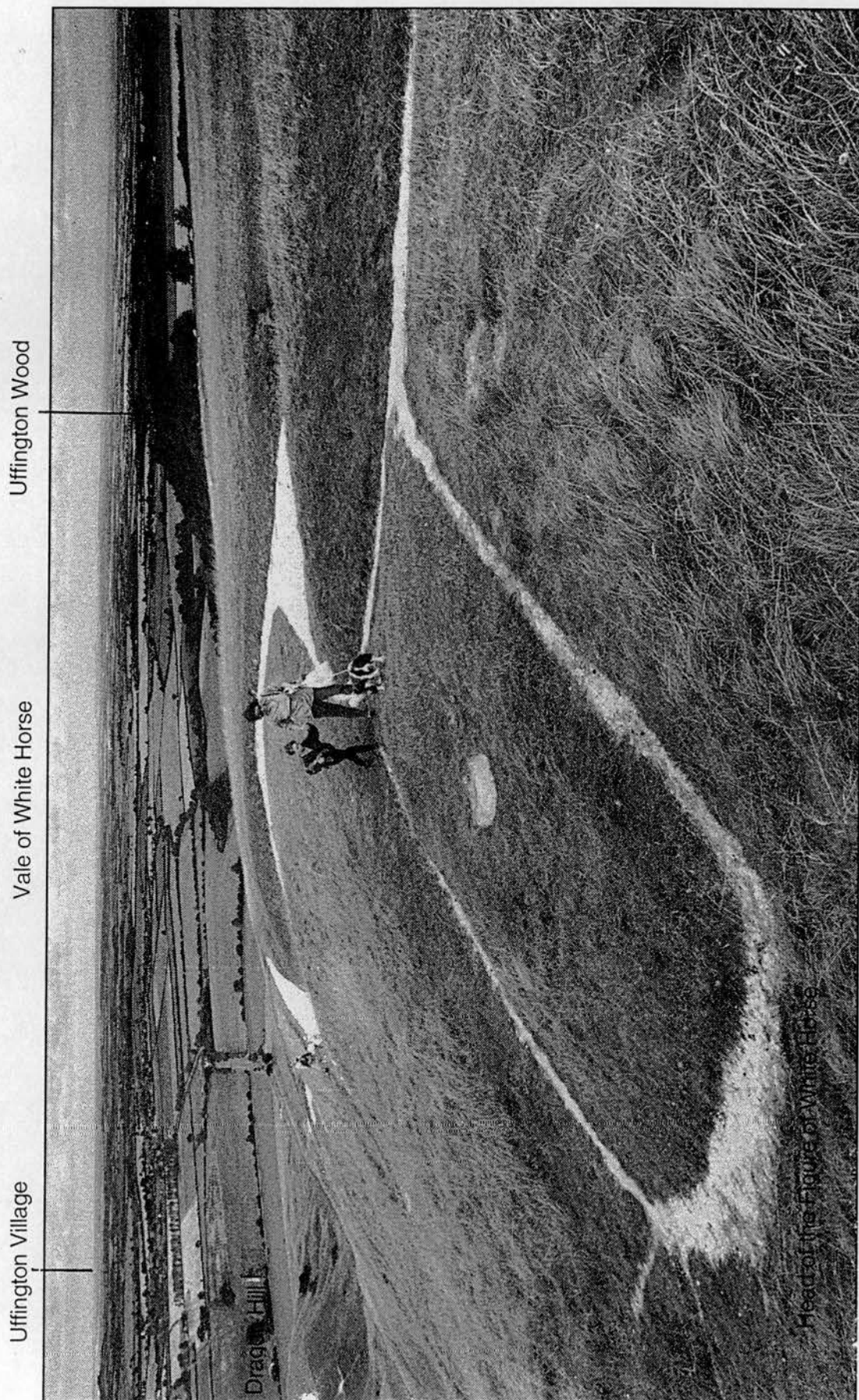
<sup>2</sup>Clayton P. *op. cit.*, p.79; Dyer J. *op. cit.*, pp.17-18; and Miles D. and Palmer S. *op. cit.*

<sup>3</sup>Nash Paul in **Outline**, 1949, quoted by Ingrams R. *op. cit.*, p.36



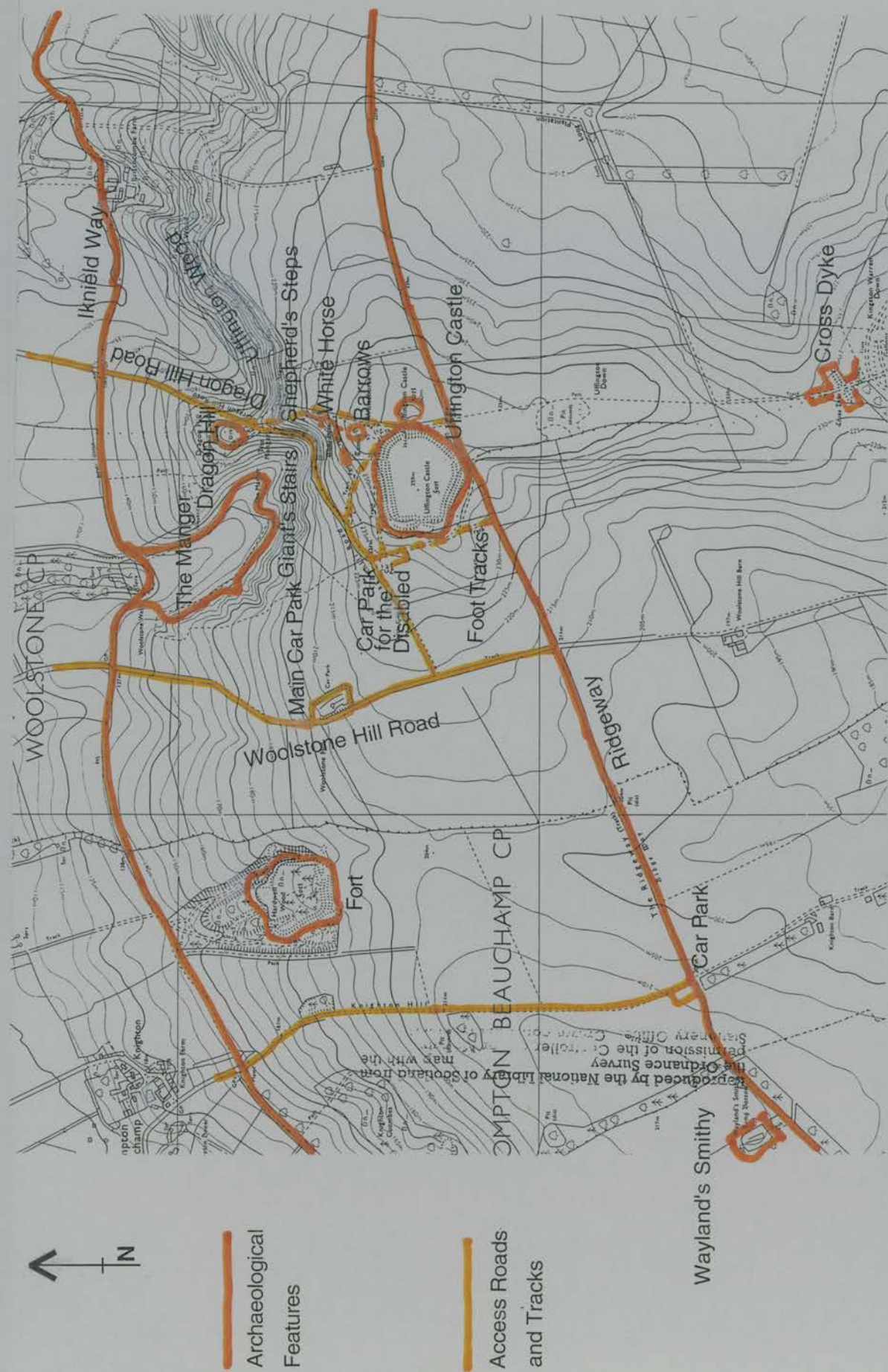
**Fig. 2.4:** The long narrow parishes, set out at right angle to the Berkshire Downs, as if to give a share of each geomorphological formation to every parish. The boundaries have hardly altered since Anglo-Saxon times despite widespread changes to the countryside following eighteenth and nineteenth century Enclosure Acts. (After Rackham O. (1986) *op. cit.*, Fig 2.3)



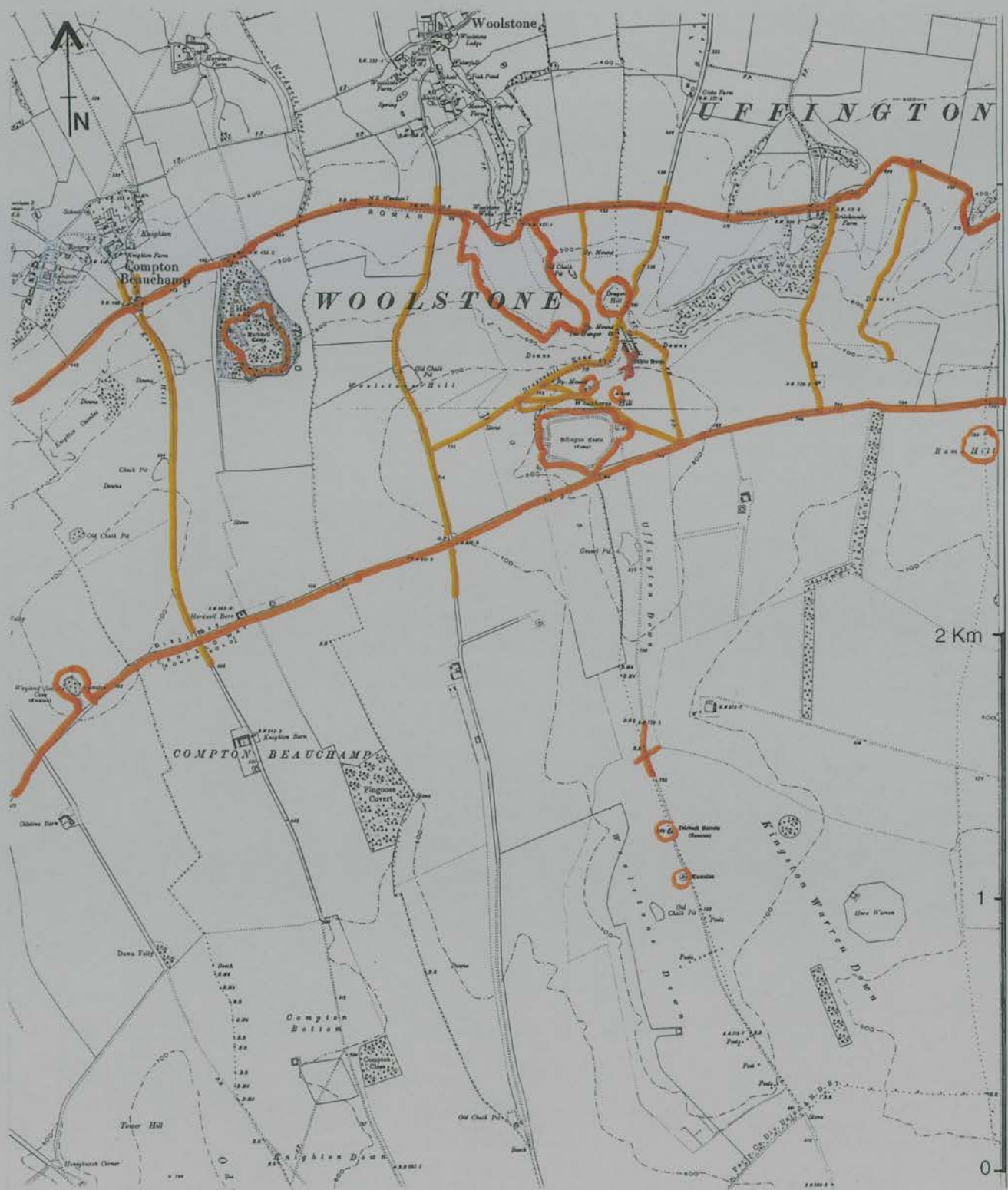


**Fig. 2.5:** The panoramic view of the open countryside seen from the White Horse Hill, just above the chalk figure, stretching some 90Km north to the Cotswold Hills. (Reproduced from **The Independent**, 28th August 1993, p. 6)





**Fig. 2.6:** Local Landscape Setting of the White Horse Hill and Other Archaeological Features in the Surrounding Area, After the Completion of Restoration Scheme (Reproduced from Ordnance Survey of Great Britain, 1:10000, 1973 and 1980 Berkshire Sheet SU28NE and SU38NW)



Archaeological Features      Access Roads and Tracks

**Fig. 2.7:** Local Landscape Setting of the White Horse Hill and Other Archaeological Features in the Surrounding Area, in the Late Nineteenth Century (Reproduced from Ordnance Survey of Great Britain, Second Edition, 1:10000, 1900, Berkshire Sheet XIII SW and XIX NW)





**Fig. 2.8:** Above: The Crest Occupied by the White Horse Sloping More Gently to North-East Above the Steep Slope Rising from the Dry Valley Called Manger. The Best View of the Horse Obtainable from within the Site.

Below: The Disjointed Forms of the Hill Figure Falling Sharply from the Edges of the Crest.

"long clean outline, drawn, as if with a few bold strokes of a giant's crayon, prancing across the downs in its ancient elegance and defying all questions about its origins, including the especially interesting one of how the ancient draughtsmen were able to create such a precise and stylish image on such a huge scale"<sup>1</sup> (fig.2.9 and 2.10). The full impact of the figure, gracefully ascending the prominent land-form of the down escarpment, can therefore be experienced over a wide expanse of the valley landscape, particularly the Vale of White Horse (fig.2.9). On a clear day, the horse is easily visible over an area stretching from the downs up to 30 or 40 km north and spanning the countryside from Cirencester to Oxford, and with dramatic views of the hill figure suddenly unfolding over the horizon (fig.2.2). Numerous aerial photographs of the horse demonstrate that the elegance of the figure galloping over the rolling downs can best be appreciated from the air. The figure, having been established as a familiar landmark from air, was turfed over and concealed during the World War in 1940 and was fully restored in 1953<sup>2</sup>. It is clear therefore that the horse figure has been deliberately positioned by its ancient creators to be seen for a long distance from the valley below, not merely as a territorial totem or a landmark, but, more evidently, as a regional icon of religious significance associated with the belief systems of the people who occupied the down-valley landscape at the time of the horse's origin. The apparent skyward transcendence of the figure is further suggestive of its spiritual relevance<sup>3</sup>.

The origin and the purpose of the White Horse and the associated antiquities within the hill site have until very recently remained as much a mystery as the strange and intriguing form of the hill figure itself<sup>4</sup>. Newly discovered evidence has begun to emerge from a several years long archaeological investigation on the hill, jointly undertaken since 1980 by The National Trust, English Heritage and Oxford Archaeological Unit<sup>5</sup>. The only documented previous excavations at White Horse Hill, conducted in the mid nineteenth century by Martin Atkins<sup>6</sup>, had yielded evidence far from being conclusive, but sufficient to establish that the Uffington Castle dated back to the Iron Age and had been continuously used through to the Roman period. They

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<sup>1</sup>*Ibid.*

<sup>2</sup>Marples M. **White Horses and Other Hill Figures**, Country Life Ltd., 1949, London, p.65; and Miles D. and Palmer S. *op. cit.*

<sup>3</sup>Based on Marples M. *op. cit.*, pp.46-53; and Miles D. and Palmer S. *op. cit.*

<sup>4</sup>Clayton P. *op. cit.*, pp.78-79; Dyer J. *op. cit.*, pp.14-16; Marples M. *op. cit.*, p.19 and p.28; and The National Trust **The National Trust Guide**, 3rd Ed., George Phillip & Son Ltd., London, 1987, p.69

<sup>5</sup>Miles D. and Palmer S. *op. cit.*

<sup>6</sup>Atkins' findings were never properly published, but emerged from various museum accession registries. (Based on Miles D. and Palmer S. *op. cit.*)





**Fig. 2.9:** The Vale and Valley North of White Horse Hill with their Numerous Hamlets and Villages Which for Millennia Laid Under the Spell of the Mysterious Hill Figure, with its Ancient Elegance Inspiring Legend and Folklore.



**Fig. 2.10:** Above: The View of the White Horse Hill from the Great Western Railway (Fig. 2.9 View A)  
Below: The View of the White Horse Hill from a Field Next to the Longcot Road (Fig. 2.9 View B)



had also established that the hillside above the horse had been extensively used as a burial ground by the Romano-British, followed by the Anglo-Saxons<sup>1</sup>, thus identifying a clear link between the Icknield Way, the Roman route encircling the hill-foot, and the antiquities on the hill above (fig.2.6). No past attempt at excavating the White Horse had been recorded, underlining the inconclusive nature of the reliable evidence available. Therefore, the relationship between the various man-made features clustered together on the hill had never been properly understood and was often misinterpreted.

The recorded history of the Uffington Horse goes as far back as the Norman Conquest, when place-name evidence emerges from various chartularies that date from the eleventh century to the fourteenth century, confirming that the White Horse Hill and The Vale of White Horse were well established and familiar features at the time of the records<sup>2</sup>. The horse could have been known as an ancient landmark even at this time<sup>3</sup>. By the fourteenth century, it was certainly regarded as one of the marvels of Britain, placed only second to Stonehenge in a manuscript<sup>4</sup>. It was considered the prototype of primitive workmanship that inspired a numerous progeny of hillside horses and other figures -some fifty of them scattered across Britain, and with the Uffington Horse considerably earlier than the rest at least in the written record<sup>5</sup>. Nevertheless the origins of the White Horse have excited interest, controversy and debate, sometimes viciously argued, since the seventeenth century<sup>6</sup>.

The scholarly thought of generally two schools of advocacy has often drawn, in the absence of sufficiently reliable evidence, inferences from the rich memorabilia of mythology, legend and folklore revolving around the White Horse; in some cases verifiably colloquial in origin, and perhaps, descended over the centuries from generation to generation; and in other cases deliberately invented for advantage in the debate<sup>7</sup>. One school of thought has generally advocated an Anglo-Saxon origin for the horse. This theory has been based on the belief systems that accredited the figure as either the emblem or the steed of supposed Saxon rulers often held in superstition as deities, or as a totem of the Christian victory over Saxon paganism. The most recent theory to have emerged from this school of thought has favoured a pagan Anglo-

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<sup>1</sup>Dyer J. *op. cit.*, p.14; and Miles D. and Palmer S. *op. cit.*

<sup>2</sup>Marples M. *op. cit.*, pp.53-54

<sup>3</sup>Clayton P. *op. cit.*, p.78; and The National Trust *op. cit.*, p.69

<sup>4</sup>Marples M. *op. cit.*, p.54

<sup>5</sup>*Ibid.*, pp.17-20

<sup>6</sup>Miles D. and Palmer S. *op. cit.*

<sup>7</sup>Marples M. *op. cit.*, pp.31-53

Saxon origin to the White Horse and a more naturalistic and fuller shape to the figure, arguing that the figure has reduced to its present, rather anorexic, form merely as a result of erosion and insufficient scouring over the centuries<sup>1</sup> (fig.2.11). The more widely accepted theory established by the other school of thought has dated the horse further back into prehistory, giving it a more plausible Iron Age origin. This theory has relied more on the resemblance of the figure to animal imagery in Iron Age coinage and even earlier Celtic art (fig.2.12), and the scarce past archaeological finds on the hill itself, which in turn has established a firmer relationship between the horse and the other antiquities on the hill site and the surrounding area<sup>2</sup>.

These theories aside, the diverse repertoire of folklore and legend, superstitions and beliefs, customs and traditions, prose and verse and arts and crafts, which centres around the mystical figure of the White Horse and which has accumulated over the centuries, is a clear indication of the powerful inspirational spell the horse has cast over generation after generation of the local inhabitants and those from afar who have known it. The fact that such a fragile figure on a constantly eroding porous surface of the downs has survived to the present-day is further proof of the intimate part it has continuously played in the local tradition, very much like a church or other centres of belief and custom<sup>3</sup>. The local tradition thus established over the centuries has held within its memorials, both real and mythical, an interpretation of its own of the landscape of the White Horse, that has often influenced scholarly thought, yet has hardly been modified by it.

Several natural geomorphological features on the hill therefore carry symbolic meanings related to the mythology of the White Horse and are accordingly known by an appropriate, long-established set of names. The spectacular dry coomb, from which the down escarpment rises sharply with a few shapely terraces -a formation of periglacial activity some 12,000 years ago and subsequent weathering<sup>4</sup>- is called the Manger and the terracing on the slope the Giant's Stairs (fig.2.6 and 2.13). The chalk mound detached from the downs, lying beneath the White Horse -once again a periglacial formation- is known as Dragon Hill; the curiously bare patch on the flat top of the mound, a result of its geological formation, is held in the mythology as the blood spilled, and therefore barren, site where a deity saddled atop the steed of White

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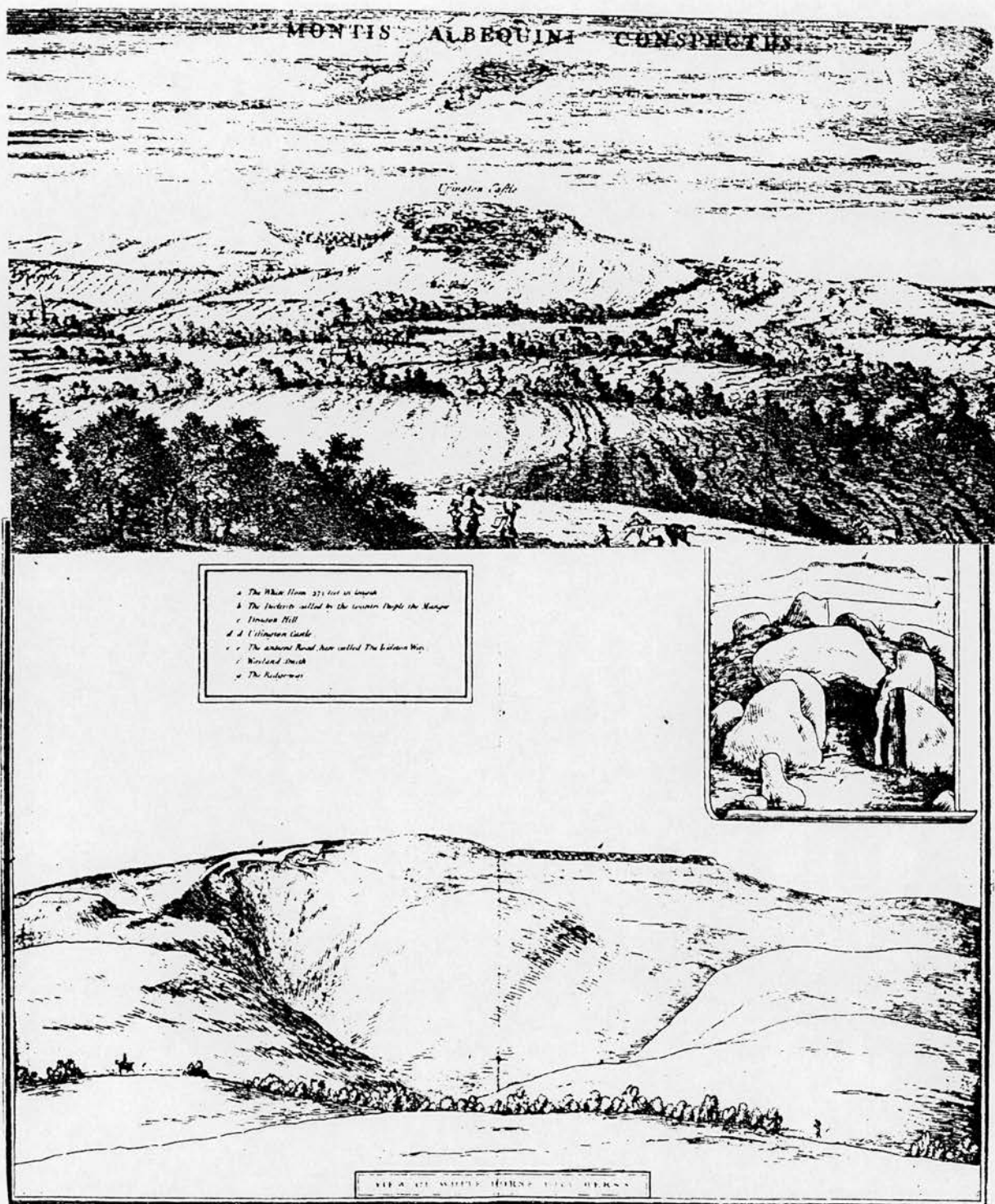
<sup>1</sup>Based on a joint press release by The National Trust and English Heritage, 15 February, 1995; and Marples M. *op. cit.*, pp.40-53; also see Miles D. and Palmer S. *op. cit.*

<sup>2</sup>*Ibid.*

<sup>3</sup>Dyer J. *op. cit.*, p.15; and Marples M. *op. cit.*, pp.26-28

<sup>4</sup>Miles D. and Palmer S. *op. cit.*





**Fig. 2.11:** Above: an engraving of the White Horse Hill accompanying a document by Rev. Francis Wise (1738) the earliest advocate of an Anglo-Saxon origin for the horse. The naturalistic shape of the horse depicted is clearly an error made by the delineator as it contradicts the written description by Wise. Yet, the down-valley landscape may have been accurately depicted. It is interesting that exactly 222 years after the date of Wise's engraving, a recent advocate of Anglo-Saxon origin to the horse, convincingly argued a theory that the horse was originally of naturalistic form as erroneously depicted by Wise's delineator! (See Woolner D. *The White Horse of Uffington*, *Trans. Newbury District Field Club*, vol. xi, 1960, pp. 27-44).

Below: White Horse Hill from Lyson's *Britannia*, 1831 (Reproduced from Marples M. *op. cit.*, pl. 6 and 7).

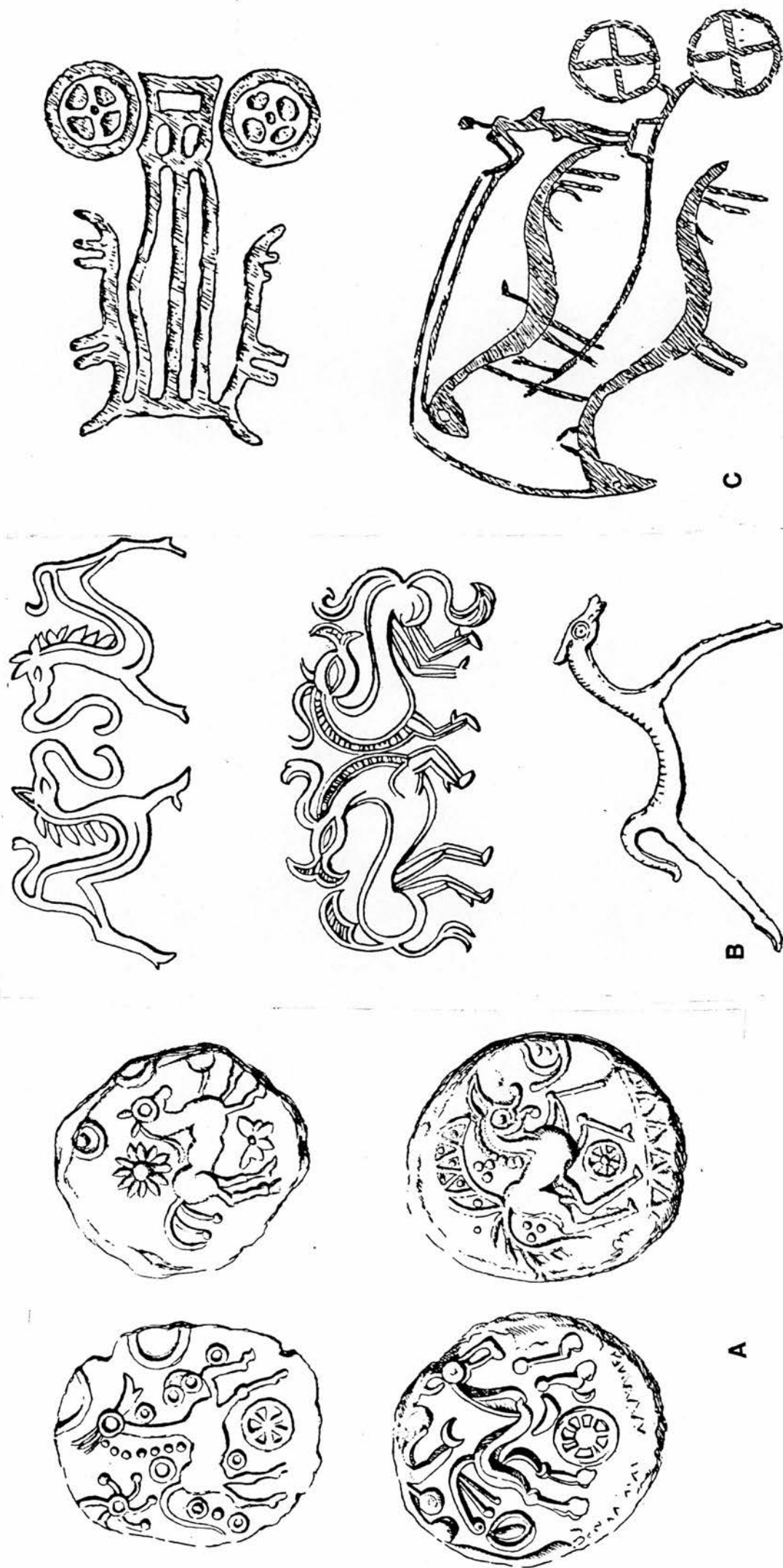


Fig. 2.12: (A) British Iron Age Coins with Representations of Horses  
 (B) Celtic Horse Representations on Iron Age Buckets Found in Britain, and a Romano-British Bronze Horse  
 (C) Swedish Rock Engravings of the Bronze Age  
 (Reproduced from Marples M. *op. cit.*, fig 3, 4 and 5)



**Fig. 2.13:** Above: The shapely dry valley called the Manger and the hillsides rising above known as Giant's Stairs viewed from just below the crest occupied by the White Horse.

Below: Dragon Hill, a detached, flat-topped natural mound linked in mythology to the White Horse. Note the bare patch on the top of the mound.



Horse had slain a dragon, symbolising victory of good over evil, life over death or even Christianity over paganism<sup>1</sup>.

All the three features, the Manger, Giant's Stairs and Dragon Hill are geomorphological curiosities of national importance and thus form a large part of the site of statutory protection (fig.2.18), while the Dragon Hill has in addition yielded evidence of Romano-British activities in early excavations<sup>2</sup>. The mythology also connects White Horse Hill across the crest of the downs to the Wayland's Smithy, as the dwelling of the invisible smith who shod the steed of the gods (fig.2.6 and 2.14). This unique multi-chambered and very long barrow, well preserved and mystically splendid in its beech tree-lined setting, has, by legend, always been part of the White Horse Hill monuments, despite its distance from the latter and being securely dated to the mid Neolithic, the subsequent ages all having been evidently connected to the barrow<sup>3</sup>. Many of the hill-forts and burial grounds in the area are strongly linked to the White Horse Hill through various mythologies of the local tradition. Recent excavations in the vicinity of the hill have given impetus to these legends by establishing that the area around the horse at the time of its creation was a place of major prehistoric activity<sup>4</sup>.

A hill figure like the White Horse needs regular cleansing and maintenance for its survival. Such operations are delicate, laborious and labour intensive. The continuity and preservation of the horse over at least the last 1500 years<sup>5</sup>, within which the communities living in the vale have gone through several episodes of dramatic socio-political and religious change, clearly signify the intimacy with which culture after culture must have adopted the legendary horse into the ever changing belief system and collectively held the curatorial responsibility for the figure. Therefore, the most important facet of the local tradition revolving around the White Horse is the periodical cleansing of the figure. This must obviously, stretch back to the beginnings of the White Horse and forward to the present statutory responsibility of the national authorities of its guardianship. Recorded history of the scouring of the horse dates from the early eighteenth century, and by then, the primitive, religious ritual of cleansing the figure had evolved to a regional cultural festival, or a fête of

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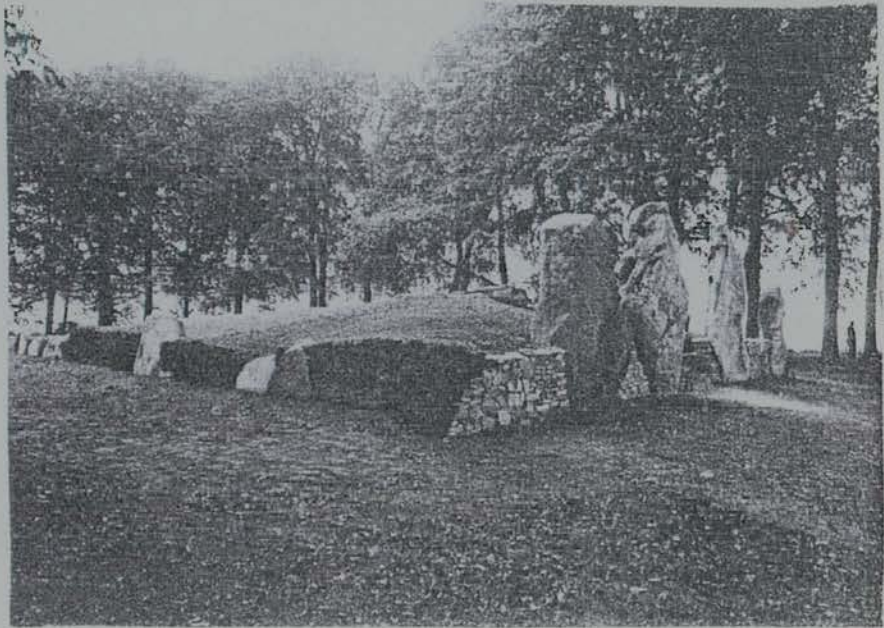
<sup>1</sup>Lock G., Raven S. and Steiner M. Excavations at White Horse Hill, Report Produced for Oxford University Department for Continuing Education, Summer School, 1994

<sup>2</sup>Based on *Ibid.*; and Miles D. and Palmer S. *op. cit.*

<sup>3</sup>Clayton P. *op. cit.*, pp.78-80; and Dyer J. *op. cit.*, pp.17-18

<sup>4</sup>Based on a joint press release by The National Trust and English Heritage, 15 February, 1995; and Lock G., Raven S. and Steiner M. *op. cit.*

<sup>5</sup>The period undisputed for the figure's existence although recent evidence conclusively establishes that the White Horse is nearly 3000 years old (Miles D. and Palmer S. *op. cit.*).



**Fig. 2.14:** Above: Legendary Features of Dragon Hill, Giant's Stairs and the White Horse itself Seen Together from the Plateau North-East of the Site. Filling the slope between Dragon Hill and the crest of the horse is the Uffington Wood, the only wooded area within the hill site.

Below: Wayland's Smithy in Its Full Prehistoric and Mystic Splendour, Sheltered Around by Nearly a Century Old Beech Trees (Reproduced from Dyer J. *op. cit.*)



(a)



The old White Horse wants setting to rights,  
And the Squire has promised good cheer,  
So we'll give him a scrape, to keep him in shape,  
And he'll last for many a year.

He was made a long, long time ago,  
With a good deal of labour and pains,  
By King Alfred the Great, when he spoiled their conceit  
And caddled those wosbirds the Danes.

The Blowing-stone in days gone by  
Was King Alfred's bugle horn,  
And the thorning-tree, you may plainly see,  
Which is called King Alfred's thorn.

There'll be backword play, and climbing the pole,  
And a race for a pig and a cheese,  
But we think as he's a dummel soul  
Who don't care for such sports as these.

(caddled = harassed; wosbirds = a term of abuse; dummel = dull)

**Fig. 2.15:** (A) Sketch Showing Scouring of the White Horse, from Hughes T., *The Scouring of the White Horse*, 1858 (Reproduced from Marples M. *op. cit.*, pl. 9). (B) Local Balad Sometimes Sung at the Scouring (*ibid.* p. 60). (C) A Local Notice Advertising a 'passtime' (*ibid.* p. 59)

(c)

## 'PASTIME

'To be held on the occasion of the Scouring of the White Horse, September 17th and 18th, 1857.

'At a meeting held at the Craven Arms, Uffington, on the 20th day of August, 1857, the following resolutions (amongst others) were passed unanimously:

'First. That a pastime be held on the White Horse Hill, on Thursday and Friday, the 17th and 18th of September, in accordance with the old custom at the time of "The Scouring of the White Horse."

'2dly. That E. Martin Atkins, Esq., of Kingston Lisle, be appointed Treasurer.

'3dly. That prizes be awarded for the following games and sports, That is to say—

'Backsword Play. { Old gamesters, £8.  
                                  { Young gamesters, £4.  
'Wrestling. { Old gamesters, £5.  
                                  { Young gamesters, £4.

'A jingling match.

'Foot races.

'Hurdle races.

'Race of cart-horses in Thill harness (for a new set of harness).

'Donkey race (for a fitch of bacon).

'Climbing pole (for a leg of mutton).

'Races down "The Manger" (for cheeses).

'A pig will be turned out on the down, to be the prize of the man who catches him (under certain regulations); and further prizes will be awarded for other games and sports as the funds will allow.

4thly. That no person be allowed to put up or use a stall or booth on the ground, without the previous sanction of Mr. Spackman, of Bridgecombe Farm (the occupier), who is hereby authorized to make terms with any person wishing to put up a stall or booth.

'Signed, E. MARTIN ATKINS, Chairman.'

feasting merrymaking and rustic sports, held following the scouring of the horse. Under the feudal system, the lord of the manor held the responsibility for managing the White Horse Hill and for the organisation and expenses of the scouring festival<sup>1</sup> (fig.2.15).

The landscape of the White Horse Hill therefore is much more complex and meaningful than its mere physiographical form may suggest at the first glance. It is an evocative landscape invested with memories, beliefs and customs, to which its users are attached both emotionally and aesthetically, and over which they have a sense of proprietorship. It has posed diverse meanings to many different users over the centuries, who have in return regarded it in diverse ways; and it still continues to inspire various emotions in the minds of its various users<sup>2</sup>. By its mere emotional impact on people, it gains credibility in the changing world surrounding it while remaining essentially unchanged. The focal point of this mystic power is the horse itself, and therefore the key to understanding this landscape lies in the mysterious figure. Many have regarded it as a work of art, and by any standard, it is a product of great workmanship and one scarcely emulated since<sup>3</sup>. It is a design that has successfully exploited the natural formations of the escarpment to the best advantage, so that the natural flow of the landscape is drawn to the figure, as if absorbing energy from the temporal surroundings for its graceful transcending gallop. This unifying force gives the landscape a wholeness, where one individual feature or formation is inseparably fused to the others, and as Paul Nash<sup>4</sup> observed:

*"once the futile game of 'picking out' the White Horse is abandoned, the documentary importance of the site fades, and the landscape asserts itself with all the force of its triumphant fusion of the natural and artificial design. You then perceive a landscape of terrific animation whose bleak character and stark expression accord perfectly with its lonely situation on the summit of the bare downs."*

White Horse Hill thus proves to be a rare example of a landscape where human creation and natural formation blend together to inspire fantasy, mystery and wonder beyond the cold truths of hard archaeological fact; Ingrams<sup>5</sup> puts it as follows:

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<sup>1</sup>Dyer J. *op. cit.*, pp.15-16; Lock G., Raven S. and Steiner M. *op. cit.*; Marples M. *op. cit.*, pp.53-65; and Miles D. and Palmer S. *op. cit.*

<sup>2</sup>Largely quoted and based on Miles D. and Palmer S. *op. cit.*

<sup>3</sup>Ingrams R. *op. cit.*, p.36; and Marples M. *op. cit.*, p.23 and p.36

<sup>4</sup>Nash Paul in **Outline**, 1949, quoted by Ingrams R. *op. cit.*, pp.36-38

<sup>5</sup>Ingrams R. *op. cit.*, pp.34-35

*"In the modern world when every secret is out and instant factual data are available for all fields of inquiry, such lack of information" (for the White Horse) "is refreshing. No one who walks along the Ridgeway needs feel ignorant. He is just as knowledgeable as the professional archaeologist."*

It is not a landscape that may be crudely divided or parcelled for recreation or any other land use, or even in the name of conservation. Yet, it was exactly the opposite course of action that ultimately led to the need for the White Horse Hill restoration scheme in the late 1960's.

## **2.2 The Purpose of the Scheme**

Until well into the latter half of the nineteenth century, the maintenance of the hill figure and the management of the surrounding land had been a collective traditional responsibility of the local community, under the guardianship of the lord of the manor. The ceremonial event of the scouring of White Horse, then known as Uffington 'Pastime', had been taking place on a regular basis until the last such recorded festival in 1857. Although the festivities appear no longer to have been held, the scouring of the figure had continued, albeit on a less regular basis<sup>1</sup>. The area surrounding the figure would have been managed until well into the twentieth century in traditional ways applied to downland in the past: the hillside would have been used almost entirely as 'long-lay' pastures without improvement, as apparent from the established field patterns in Ordnance Survey first and second editions (fig.2.16, *cf.* fig.2.17); the survey records no permanent enclosures for arable farming all along the escarpment, the field boundaries shown being those of the tenure parcels, many of which are still visible on the hillside as eroded ridge-marks on the surface; a few of these parcels would have been used as rotational arable enclosures on a seasonal basis, particularly on lower levels of the escarpment. It is clear from the survey that the land uses, roads and tracks on the hillside then blended well with the ancient features and the hill yet remained the whole and distinctive landscape that it had evolved to be.

Since the passing of the Ancient Monuments Protection Act by the government in October 1882<sup>2</sup>, the local responsibility for maintaining the White Horse appears to have lapsed, the scouring of the figure becoming less and less frequent in the ensuing years as evident from several records from around 1894<sup>3</sup>. However, the management

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<sup>1</sup>Marples M. *op. cit.*, pp.55-65

<sup>2</sup>Darvill T. C. (1987b) *op. cit.* p.3

<sup>3</sup>Marples M. *op. cit.*, p.65







**Fig. 2.17:** The Site of Restoration at White Horse Hill 10 Years After the Completion of the Scheme. (Ordnance Survey of Great Britain, 1888, Path Finder, 1:25,000, Faringdon Sheets 1135 and 1154)

Note: Many field parcel boundaries shown in the survey now only exist as linear markings on the land surface.



of the land surrounding the figure would have continued in the established traditional land use pattern for much of the early twentieth century. As a consequence of the new monument protection legislation, the Uffington Castle, the White Horse and the Dragon Hill were all scheduled as monuments of national importance and placed in the care of the state between 1936 and 1954, under the jurisdiction of the former body that has come to be known since 1983 as English Heritage<sup>1</sup> (fig.2.18). Following the National Parks and Access to the Countryside Act 1949, the Nature Conservancy Council designated an extensive area of the escarpment as a Site of Special Scientific Interest which, in addition to the archaeological resources, included geomorphological formations, such as the Manger, along the hillside as features of national importance<sup>2</sup> (fig.2.18).

The ownership of the White Horse Hill remained unchanged under the Compton Beauchamp Estate which held some 6000 acres (2400 ha) of land, inherited through the traditional feudal system (fig.2.19). Under the provisions of The National Parks and Access to the Countryside Act of 1949<sup>3</sup> an area immediately surrounding the monuments was opened to the public by covenant. This small area, enclosed from the surrounding farmland by a continuous, barbed wire fence, was limited exactly to the extent of land scheduled under the Monuments Act, except for a small parcel of adjacent land meant as a car park (fig.2.20). Here, it is important to note the change of meaning of the term free public access. Up to the early part of this century free public access to the site has meant free access. After 1949 it effectively meant free access only within a barbed wire enclosure -an indication of the extent of disdain with which the obligations newly defined by the legislation were received by the traditional land owners<sup>4</sup>, their reaction often verging upon outright ridicule.

Despite the protection offered to the downland through the SSSI<sup>5</sup> designation, more and more land on the hillside had gone under the plough by the early 1960's (fig.2.21). This sadly reflected the extent to which the area-based designation had been actually effective. It also showed how the failure of the early monument protection legislation to recognise the wider setting of the monuments protected had, in effect, encouraged the land owners to, perhaps contemptuously, express their discontent by introducing to the steep downland non-traditional land uses that were

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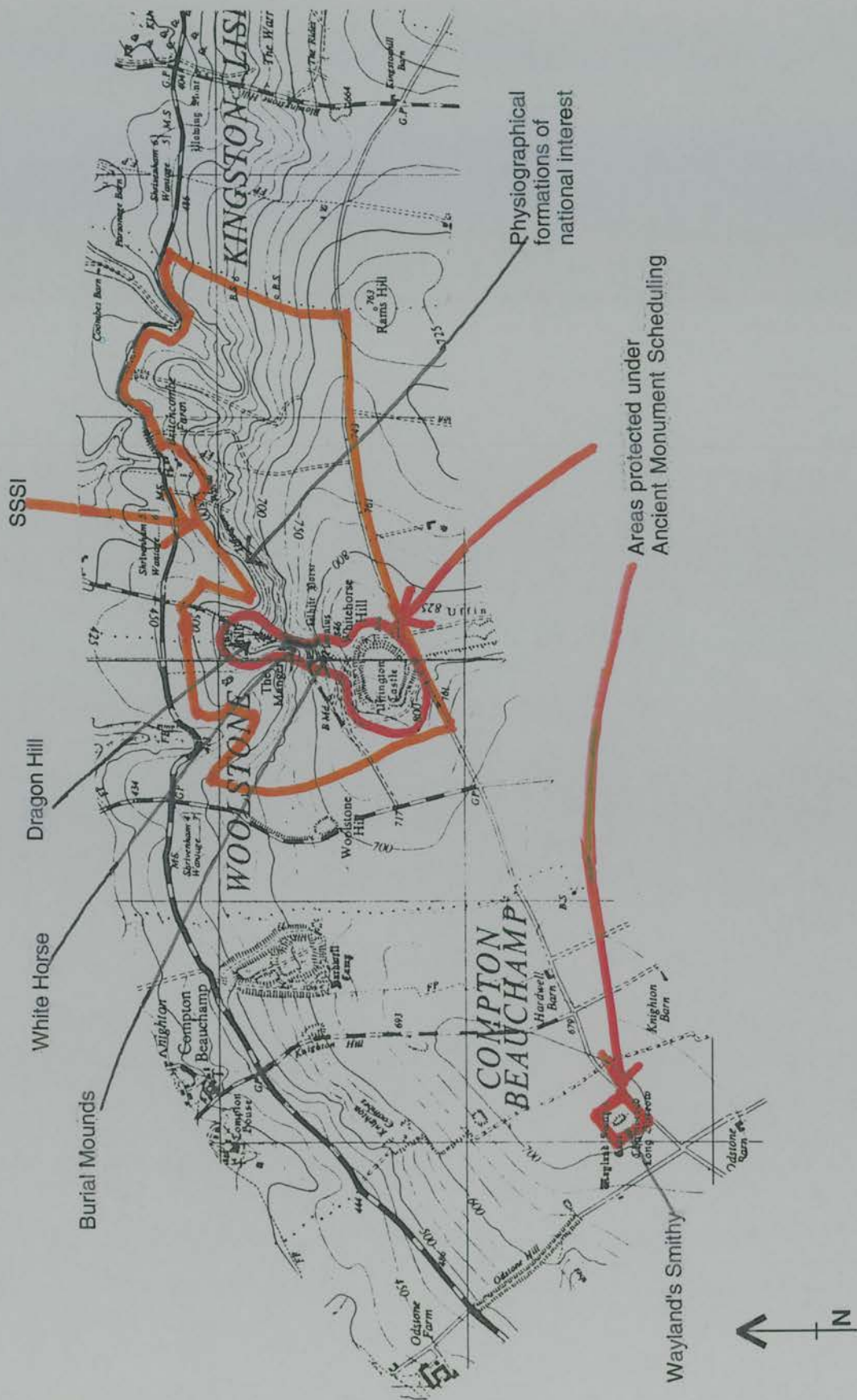
<sup>1</sup>Darvill T. C. (1987b) *op. cit.*, p.32

<sup>2</sup>Designation under the provisions of The National Parks and Access to the Countryside Act 1949. Countryside Act 1968 further strengthened these provisions (Darvill T. C. (1987b) *op. cit.*, p.37 and p.173).

<sup>3</sup>Darvill T. C. (1987b) *op. cit.*, pp.37-38

<sup>4</sup>*Ibid.*, pp.1-4

<sup>5</sup>Standard abbreviation for Site of Special Scientific Interest.

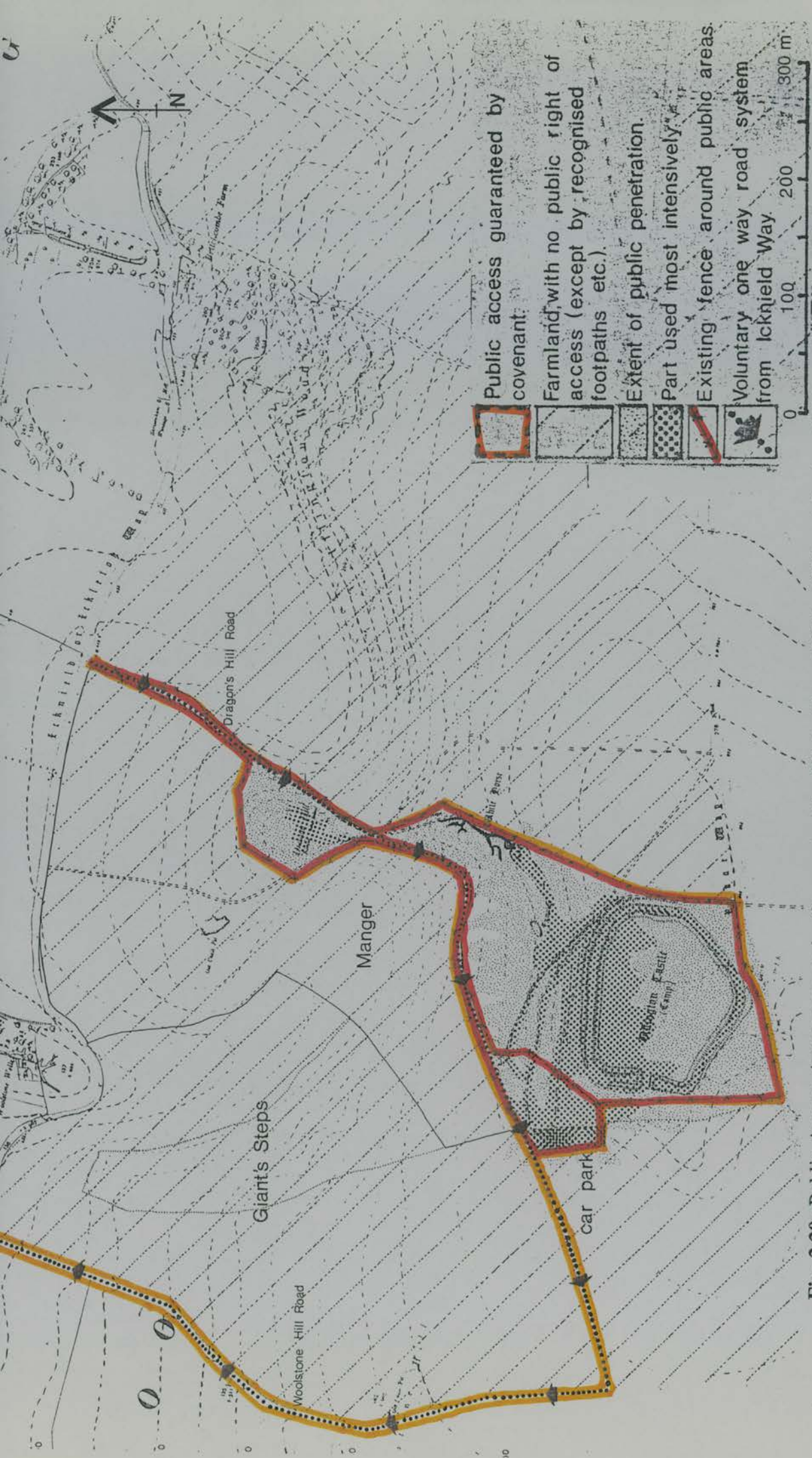


**Fig. 2.18:** Areas Under Statutory Protection at White Horse Hill by 1970 (Source: County Archaeology Advisor, Planning Department, Oxfordshire County Council) (Based on Ordnance Survey of Great Britain, Path Finder, 1:25,000, 1988, Faringdon Sheets)









**Fig. 2.20:** Public Access Arrangements by Covenant at the White Horse Hill in 1970 and Study of Visitor Circulation Within the Area Open to the Public (Reproduced with kind permission from Messrs. Colvin and Moggridge)





Fig. 2.21: Pattern of agricultural use on the site by 1970, in relation to monument and SSSI protected areas. The SSSI regulations have been closely followed in the area of Manger and Giant's Stairs, but less in the western part of the site. (Reproduced with kind permission from Messrs. Colvin and Mogridge)



becoming possible and more profitable with advanced agricultural technology<sup>1</sup>. Amidst this discordant setting, the horse ironically remained well attended, maintained and interpreted by the government body then known as the Ministry of Public Buildings and Works, but hobbled within its barbed wire enclosure<sup>2</sup>.

By the late 1960's, Rt. Hon. David Astor, the then owner of the Compton Beauchamp Estate, realised that the conflict between the land uses on the hillside had become unacceptable. Increased publicity to the White Horse and other antiquities on the site through fast developing popular media and increased car ownership had resulted in an unprecedented number of tourists visiting the site. This had been aided by a newly developed, more efficient road and motorway network. Visitors from afar arriving by car at the site now dramatically outnumbered their local counterparts. The increased visitor pressure was strongly felt throughout the downland landscape from Salisbury Plain to the Chilterns (fig.2.22 and 2.23). By the early 1970's, White Horse Hill received some 120,000 visitors a year, most of them arriving by car<sup>3</sup>. Such large number of visitors, crammed into so small an enclosed area, were causing much damage to the monuments, eroding their fragile archaeological layers (fig.2.20). Uffington Castle was the worst affected, as a result of its proximity to the crudely defined parking area, and lying at the highest point of the hill. Visitors, walking, climbing, picnicking and even scrambling motorbikes over the castle ramparts<sup>4</sup>, were causing severe erosion to the earthworks. Dragon Hill and other geomorphological features on the hillside were being similarly affected by the recreational overuse and inappropriate agricultural practices (fig.2.24). Car parking had extended beyond the parcel of land set aside for it to an unlimited sprawl west of the castle, at times extending as far as the castle ramparts. Visitors occasionally ventured even to drive along the Ridgeway (fig.2.25 to 2.30). Despite the fencing, the visitors penetrated outside the enclosed area and caused further damage to the surrounding hillside and its agriculture (fig.2.20; cf. fig.2.21). Traffic congestion on approach roads caused

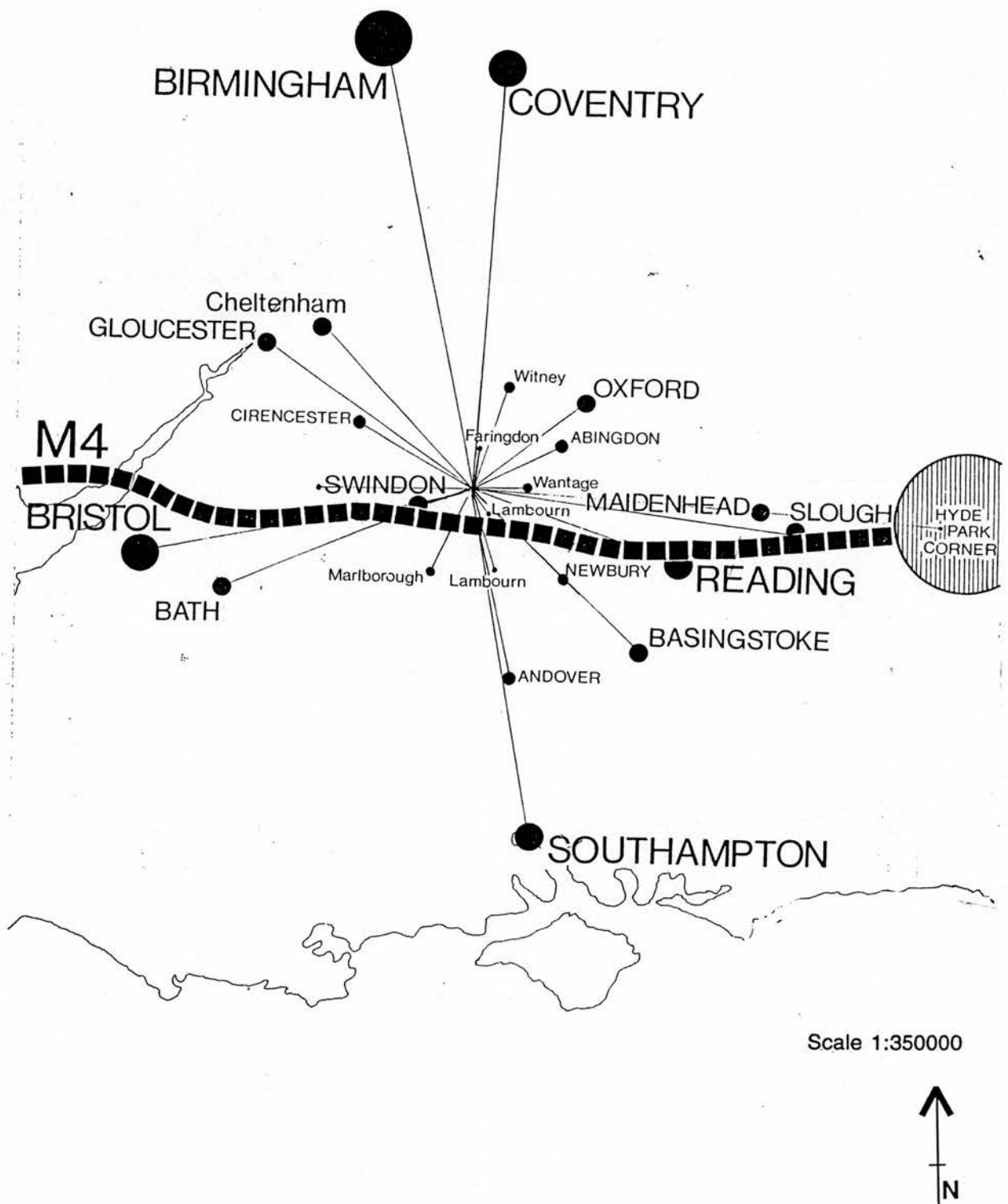
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<sup>1</sup>Darvill T. C. (1987b) *op. cit.*, p.4 and p.21

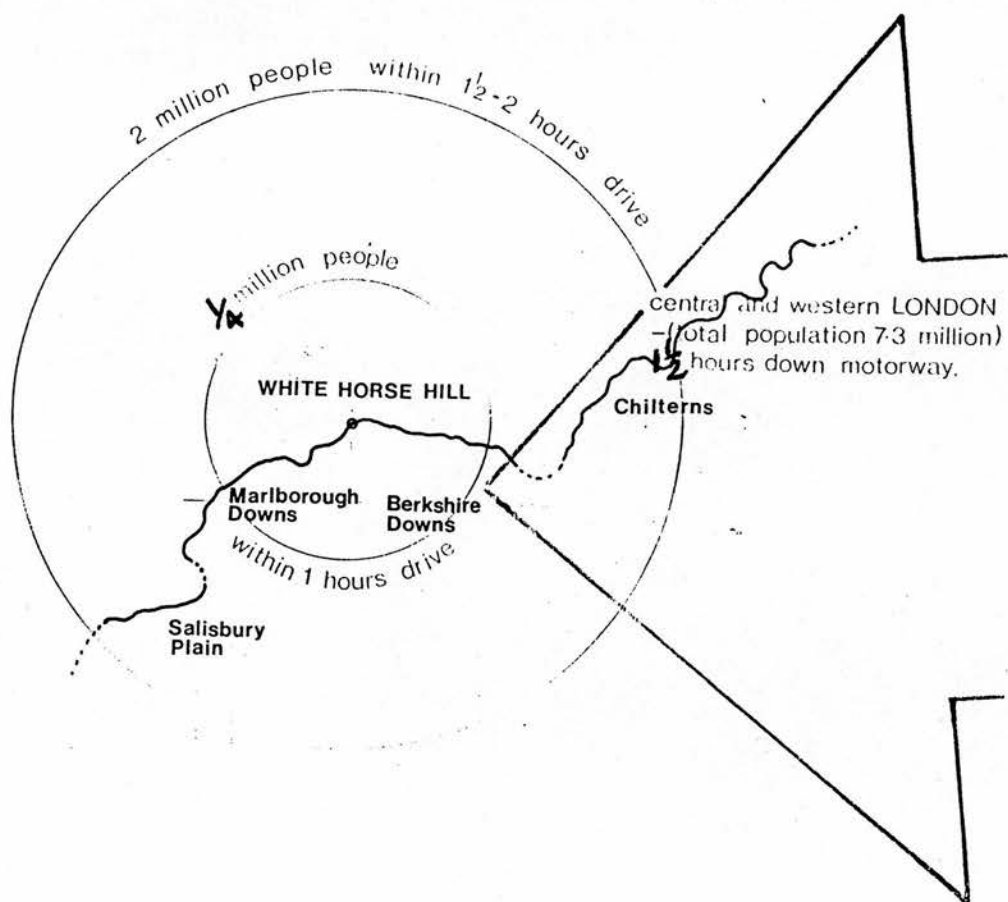
<sup>2</sup>Based on Miles D. and Palmer S. *op. cit.*

<sup>3</sup>An actual surveyed figure of visitors for this period is not available, the number given here being an estimate for 1971, projected from the surveyed figure for 1983-4 (Hodges P. White Horse Hill, Oxfordshire: Management Summary, Information and Recommendations, September 1993; an independent study for the National Trust (unpublished)), as a coordinate of the population growth in the British Isles within the 12 year period (Oxford University Press **The New Oxford School Atlas**, 1990, London, p.14). An estimate for the actual number of visitors arriving at the site by car is not known even from the 1983-4 study, except that the study gives it as "*a vast majority of the visitors*".

<sup>4</sup>Dyer J. *op. cit.*, p.14



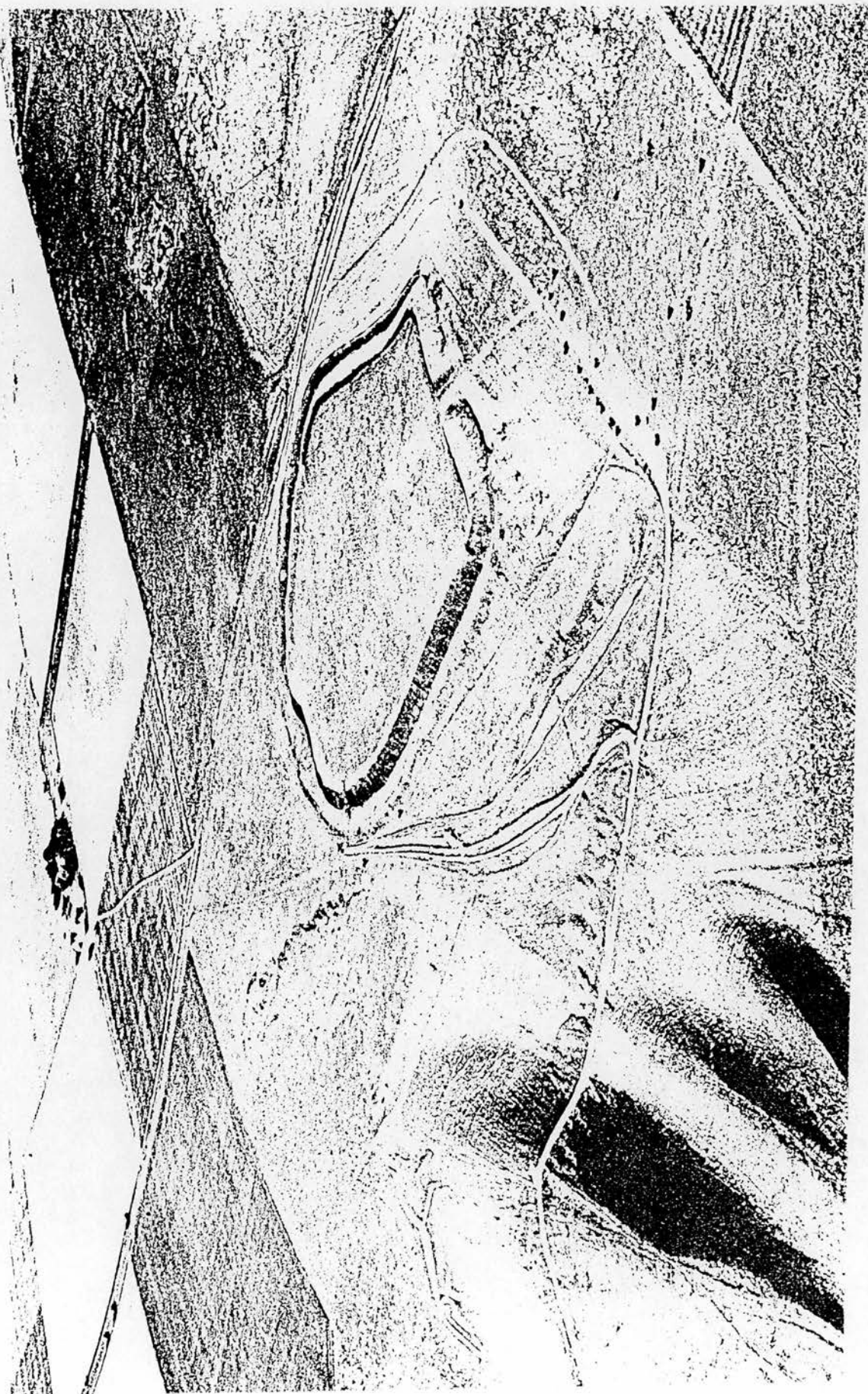
**Fig. 2.22:** Diagram Illustrating the Potential Visitor Pressure on White Horse Hill as a Result of its Proximity to Urban Centres (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



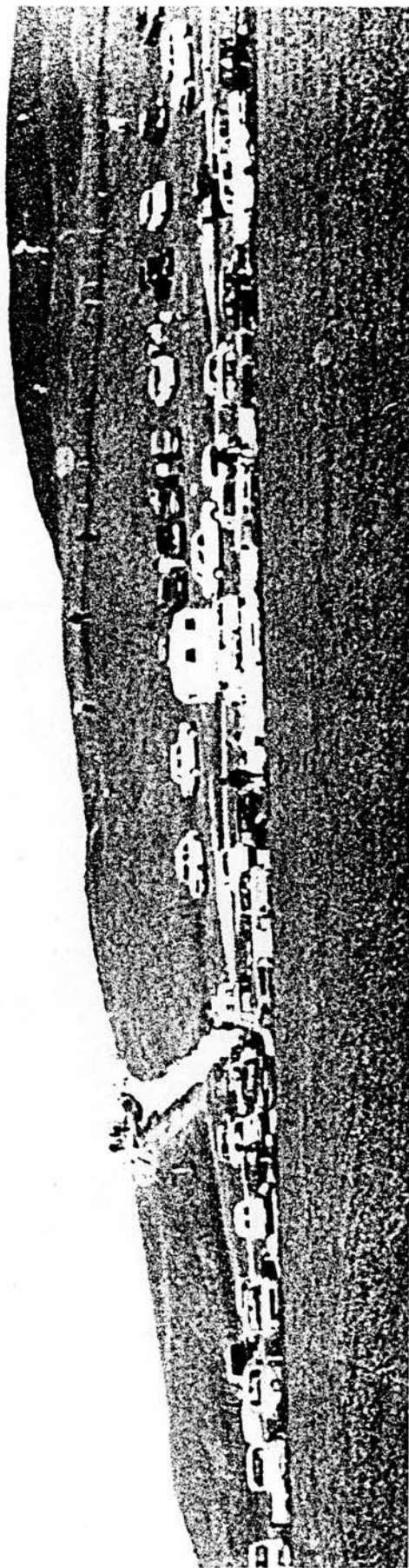
**Fig. 2.23:** The Potential Visitor Pressure on the Berkshire Downs in the Early 1970's, as a Major Area of Rural Recreational Space (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)







**Fig. 2.25:** An Aerial Photograph Taken in 1930 Showing the Unlimited Sprawl of Parked Cars up to the Uffington Castle as Early as the 1930's (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



**Fig. 2.26:** Car Parking Right up to the Ramparts of Uffington Castle in 1971; Erosion Scars On the Ramparts and Hillside are Clearly Visible. (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



Disused chalk quarry pit

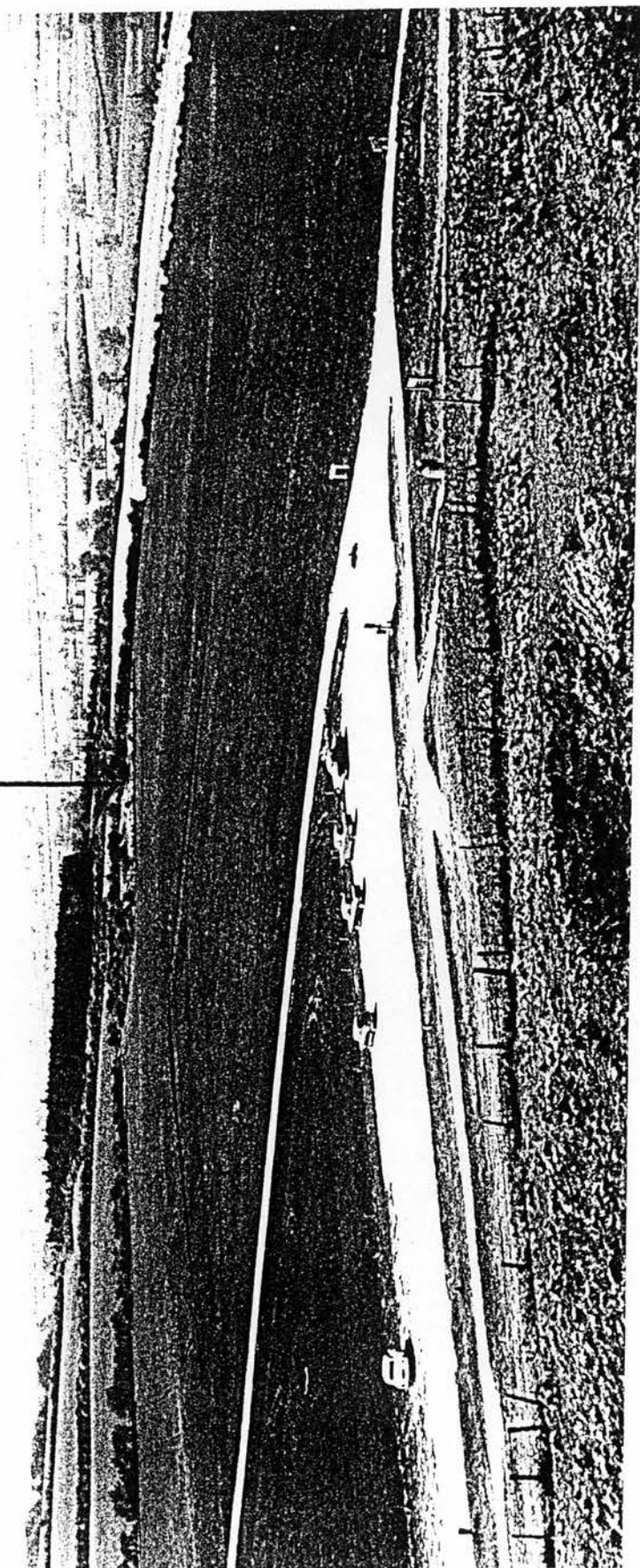


Fig. 2.27: The Large Chalk Scar that Had Established on the Hillside by 1971 Due to Car Parking, Which Would Have Dominated the Landscape Seen from the Valley Below. Note the Unusually Fence-line Along the Base of the Earthworks of the Castle and the Disused Chalk Pit that Was Later Developed as the New Car Park (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)





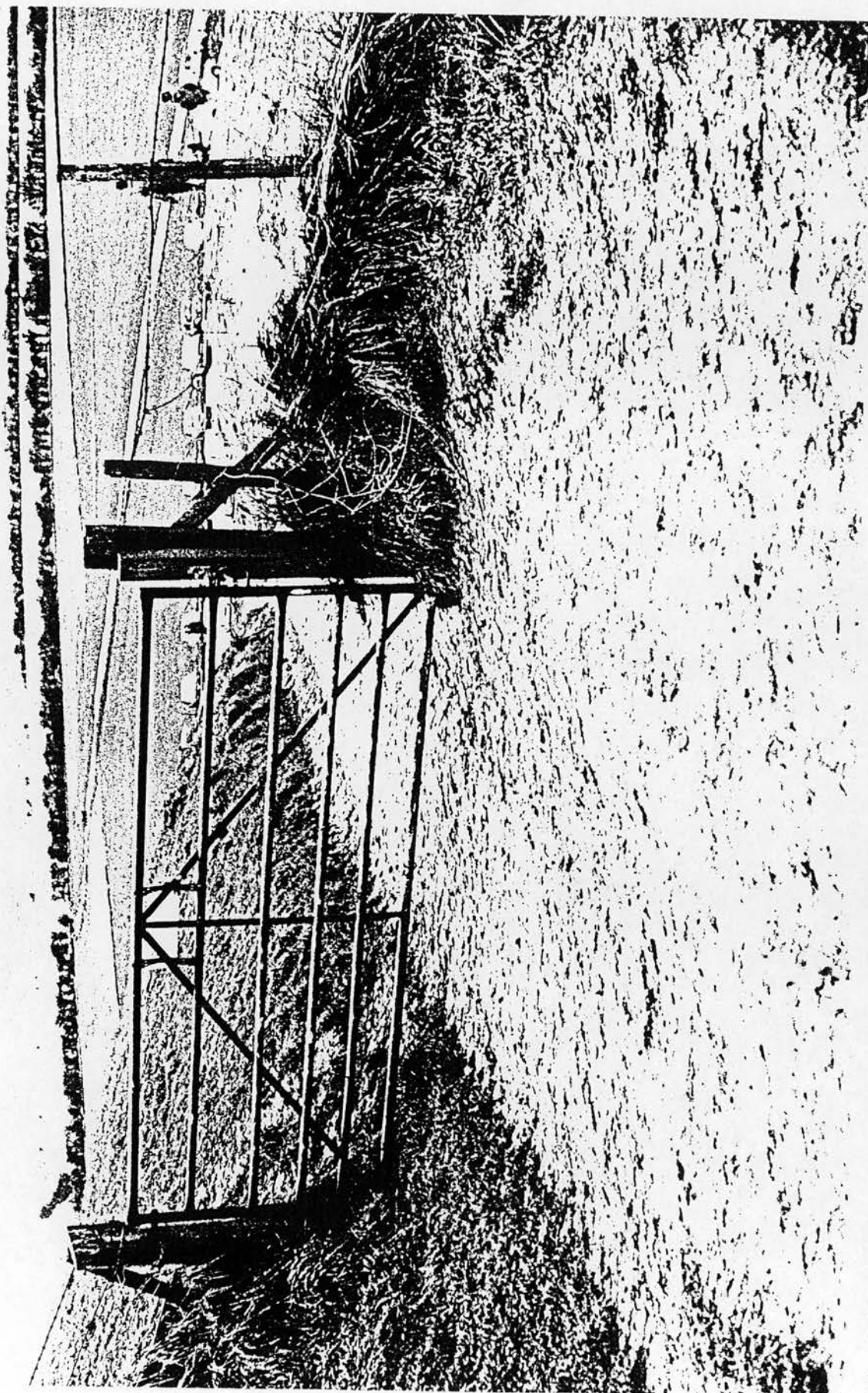
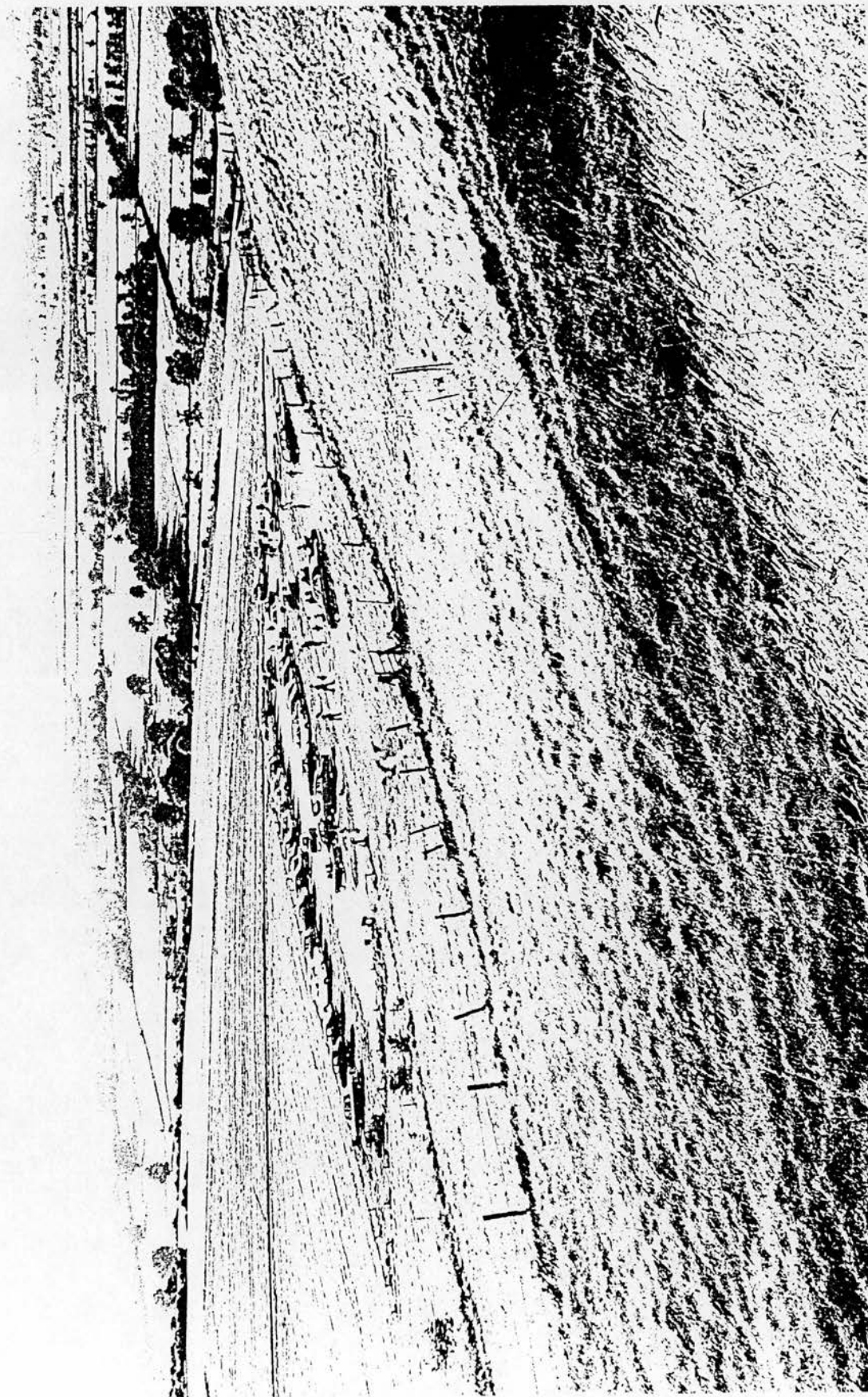
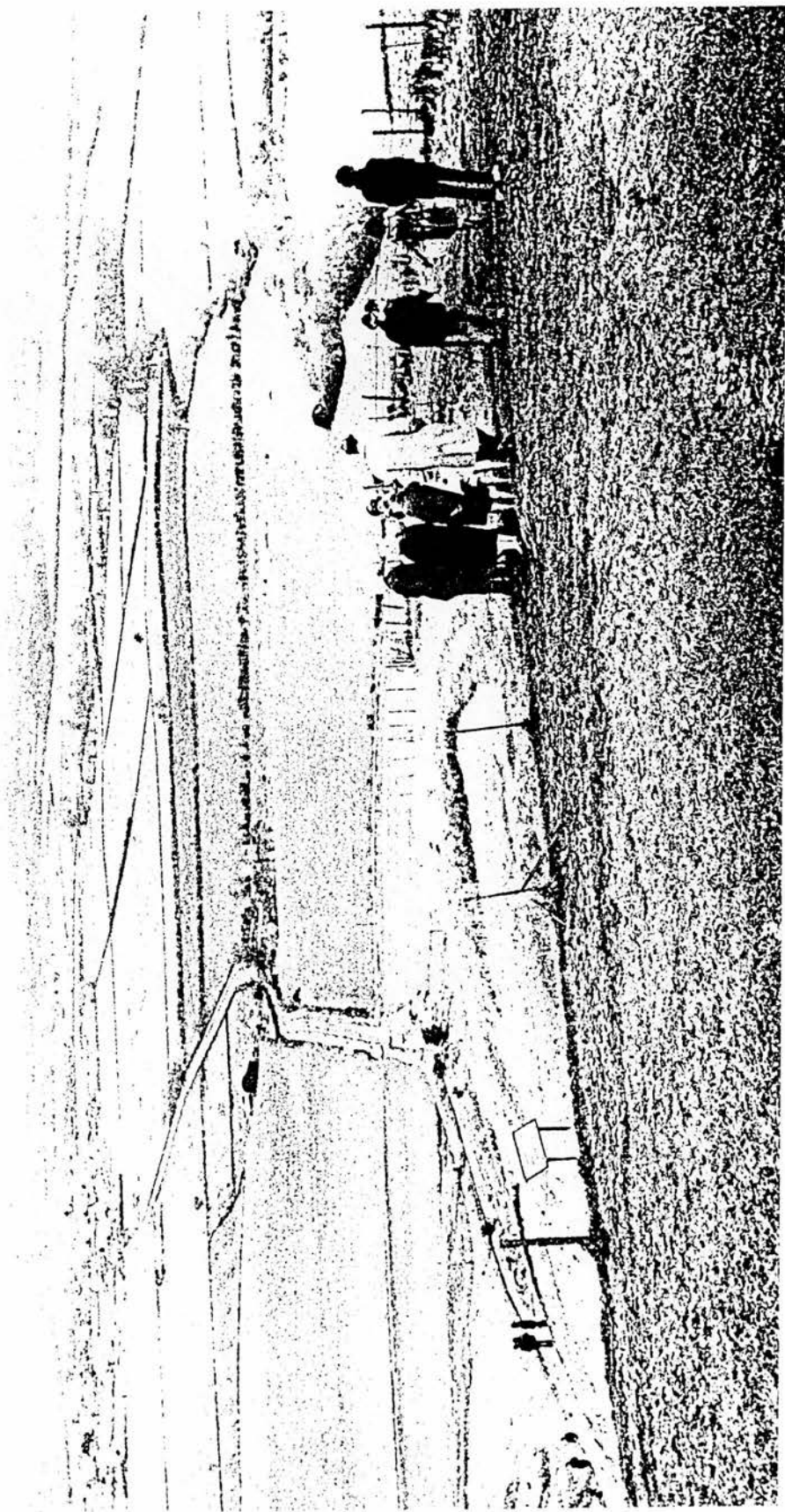


Fig. 2.28: Barbed Wire Fencing Protecting the Site at the Entrance of Uffington Castle in 1971 with Parked Cars in the Background (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



**Fig. 2.29:** Parked Cars and Fence-line Dominating the North-westerly View from the Uffington Castle in 1971, Marring the Timelessness of this Ancient Landscape (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)





**Fig. 2.30:** The White Horse Enclosed in Barbed Wire Fencing in 1971, but Still Affected by Visitors Venturing onto the Figure (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)

unpleasant conflicts between farmers and visitors, especially during periods of harvest<sup>1</sup>.

The estate ownership therefore realised that the existing management agreement with the Ministry of Public Buildings and Works had become inadequate and that the upkeep of the site had become an embarrassing burden on the estate. The ownership then decided to reinstate the dilapidated areas of the site<sup>2</sup> and to place an appropriate area of the land<sup>3</sup> in the care of the National Trust. Messrs. Colvin and Moggridge Landscape Consultants were commissioned to prepare a restoration plan for the site and a proposal for its future management under the National Trust<sup>4</sup>.

### 2.3 The Restoration Scheme

The landscape architects, Messrs. Colvin and Moggridge were given the overall administrative responsibility for the White Horse Hill restoration scheme, thus initiated in 1970. Messrs. Knight, Frank and Rutley of Hereford, the estate managing agents, were acting on behalf of the estate ownership for their legal and financial interests. A substantial area of land on the hillside was allocated by the client for the restoration scheme, closely following the extent of both the SSSI designation and the ancient monument scheduling (fig.2.19; *cf.* fig.2.21). The landscape architects were given a virtually unconditional brief, allowing them the freedom to use the site allocated as appropriate for the restoration plan. As part of the scheme, the visitor access and circulation through the Ridgeway up to and from the Wayland's Smithy were to be considered. The Inspectorate of Ancient Monuments assisted the landscape architects with relevant archaeological information and in issues arising from land use changes or work necessary within the scheduled area. The Nature Conservancy Council provided information and advice on geomorphological and biological aspects of the SSSI as well as the downland as a whole, particularly concerning the conservation and management of semi-natural vegetation of the downs as the primary means of preserving the archaeological layers of the site<sup>5</sup> (Table 2.1).

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<sup>1</sup>Based on information provided by Messrs. Colvin & Moggridge Landscape Consultants.

<sup>2</sup>The 'site' here refers to the area which was then parcelled and opened to the public, and was in the care of the Ministry of Public Buildings and Works under covenant (fig.2.20), and is different from the site allocated by the client for the restoration scheme (fig.2.19).

<sup>3</sup>From the area on the hillside surrounding the then scheduled and enclosed parcel in the care of the state, within the ownership of the Compton Beauchamp Estate (*cf.* Fig.2.19 and 2.20).

<sup>4</sup>Based on information provided by Messrs. Colvin & Moggridge Landscape Consultants.

<sup>5</sup>Darvill T. C. (1987b) *op. cit.*, p.91



**Table 2.1:** Consultants, Statutory and Non-statutory Bodies, and Parties Involved in the White Horse Hill Restoration Scheme, 1970-1979. (Based on information provided by Messrs. Colvin & Moggridge Landscape Consultants.)

<b>Consultant / Body or Interest-Party</b>	<b>Role or Involvement</b>
Compton Beauchamp Estate	Estate Ownership / Client
Messrs. Knight, Frank & Rutley, Hereford	Estate Managing Agents for the client
Messrs. Colvin & Moggridge Landscape Consultants, Gloucestershire	Landscape Architects / Overall responsibility for the scheme
Inspectorate of Ancient Monuments and Ministry of Public Buildings and Works	Statutory responsibility for the scheduled monuments and scheduled area of the site
Nature Conservancy Council	Statutory responsibility for the SSSI designated area of the site
Former Berkshire County Council	Statutory planning consent for land use changes within the site and access and circulation, especially vehicular.
Local Tenant Farmers	Effect of the restoration scheme on their tenure farming rights
The Public	Statutory defined public rights for the site as a heritage of national importance, as well as interests of the general public for the outcome of restoration scheme (i.e. Public Inquiry)
Countryside Commission	For grant aid for the scheme
The National Trust	Future guardians of a site defined by the restoration plan

In their landscape evaluation approaching and focusing on to the site, the landscape architects quickly established the significance of White Horse Hill as the central feature dominating the regional landscape. They understood at once the visual spell the White Horse cast over the valley landscape, in its harmonious union with the natural formation of the hill and the form of the Uffington Castle; and they realised that

any feature alien to this union, in colour, texture or form, would compete, contradict and contrast with the unified whole, and diminish it.

The evaluation identified many elements of the hill landscape, all of which were products of recent land use changes, that needed treatment in the restoration plan, either by redesign, reorganisation and relocation or, in some cases, complete elimination from the site. The encroachment of arable farming on to the hillside had developed excessive, linear forms of parcels with a variety of soil and crop textures and colours which strongly contradicted the unity of the landscape (fig.2.21). Similarly, the differential grazing pattern established as a consequence of the scheduling and enclosure of the monuments had resulted in a dominant textural division between the enclosed area and the surrounding downland. Car parking as well as the scars eroded into the chalk due to vehicular and visitor movement on the site distracted from the visual appeal of the horse and its surroundings. As much as these land uses diminished the visual splendour of the hill from a distance, they also marred the peaceful timelessness one would have otherwise experienced on the site itself, with its restrictive fencing, cluttering of cars and numerous visitors aimlessly circulating restrained within a small area without a proper sense of arrival or discovery. All these conflicted with the meditative calm the site had the potential to inspire.

The landscape architects concluded their study by arriving at the concept for the restoration plan that the union of the hill figure and the natural and man made forms in its surrounding landscape should be reinstated and given due prominence, to allow its full, emotionally satisfying expression, both from a regional perspective and from within the site itself. The elements conflicting with this should be made subordinate or concealed<sup>1</sup>. Developing the concept further, the landscape architects identified two key levels of approach to the restoration scheme. The first and primary level would seek to reinstate the unity of the site landscape by eliminating unsympathetic land uses, both agricultural and recreational, and by reorganising agricultural land uses that were traditionally appropriate for the downland landscape. At the second and final level, recreational use would be integrated with the reinstated whole rather than imposed on the landscape, by carefully co-ordinating visitor access and circulation as an inspirational experience.

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<sup>1</sup>Moggridge H. and Carter C. *Colvin and Moggridge: Profile, Landscape Design*, No.164, December 1986, p.22

Given the advantage of a substantially large extent of varied land being available for the scheme, the landscape architects at a very early stage identified that the area opened to the public should be increased from the existing 35 acres (14 ha) to 230 acres (93 ha), an area that would give the required carrying capacity for recreation, when reinstated and harmonised by re-establishing the downland grassland vegetation solely managed by traditional grazing practices. Once this principle was agreed upon, the landscape architects had the necessary freedom of site planning to develop a master plan for the future layout of the recreational site and its detailed design, and in which the archaeological resources could be properly conserved.

The landscape architects strove to arrive at a design solution that could successfully integrate visitor circulation within an appropriately laid out site. To do this they had to work within the physical limitations posed by the visual qualities of the hill, and also the ancient monument scheduling and the SSSI designation (fig.2.31). The key aspects of design aimed firstly at finding a point of visitor arrival with an unobtrusive car park, and secondly at a minimally detailed and virtually unmarked visitor circulation pattern that would spontaneously result from the positioning of the point of arrival in visual relation to the monuments visited. Visitor numbers would be controlled well below the carrying capacity of the restored site by limiting the capacity of the car park to an appropriate level. The ideal outcome of the plan would be an uncluttered, peaceful and unified landscape, wide open and with its evocative expression fully appreciable, unmarred by any obtrusive element including visitors themselves; and ideally, with the point of arrival so centred that vehicular movement would be terminated there and with pedestrian circulation extending beyond the site to the Ridgeway and Wayland's Smithy. Here, one essential consideration was the need for a suitable access for the elderly and disabled.

The first design solution the landscape architects came up with met most of these considerations (fig.2.32, 2.33 and 2.34). Yet, it had some major disadvantages that made it short of the ideal solution aimed at, although it would have totally eliminated the existing car park<sup>1</sup>. It failed to extend the appropriate downland grazing regime to visually obtrusive, arable cultivation and field fencing in the western end of the site (fig.2.33). More importantly, it relied upon the feasibility of a rather too long pedestrian ascent focusing on to the summit of the hill with Uffington Castle as the centre of attraction. The White Horse, the actual visitor driving force, thus occupied a secondary position *en route*, which would have led to a confusion and aimlessness of

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<sup>1</sup>In the final solution, a small part of the existing car park had to be retained as the access point for the elderly and the disabled.





**Fig. 2.31:** The Physical Limitations within which the Restoration Plan for White Horse Hill was Developed. (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)





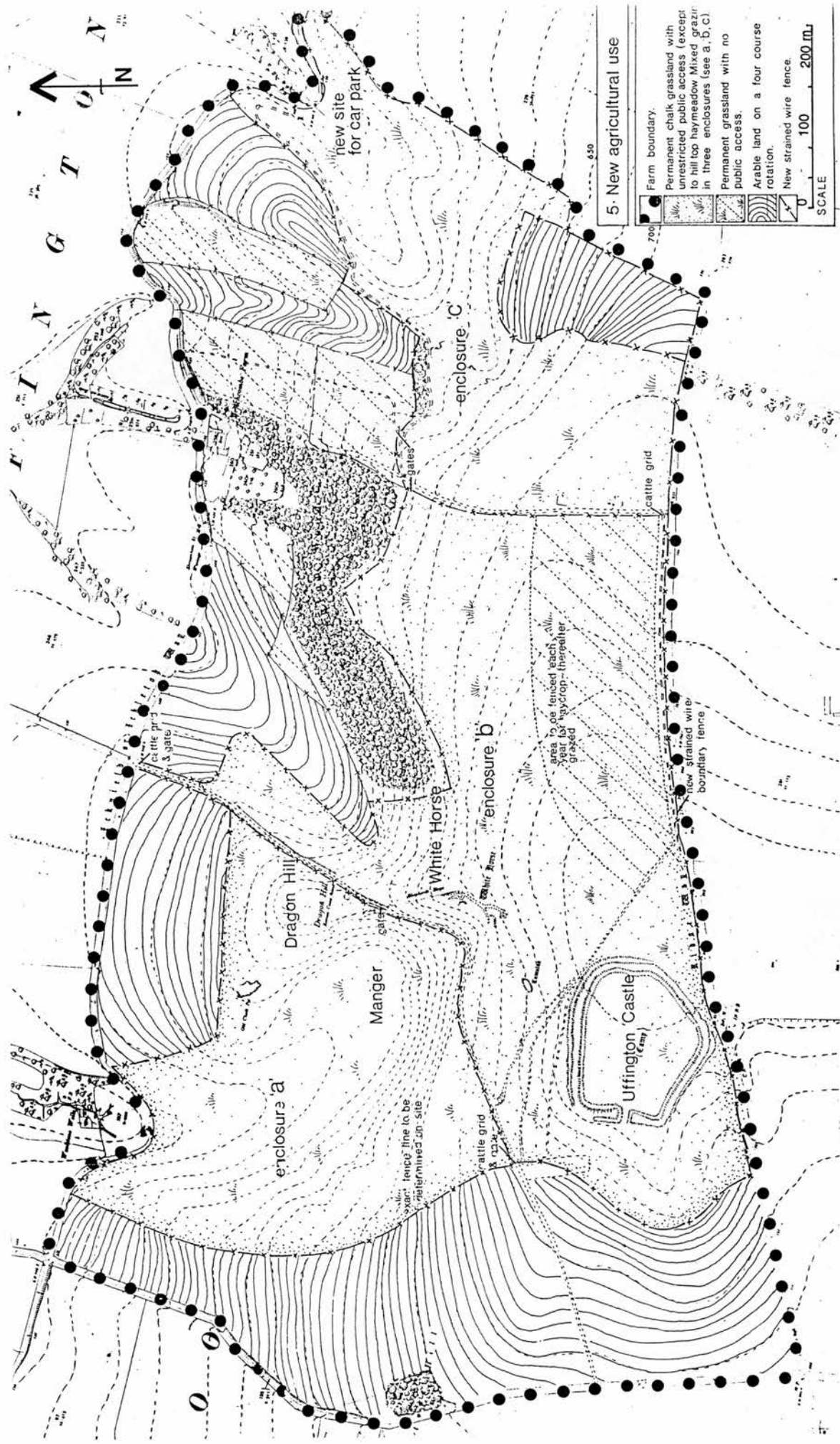


Fig. 2.33: Proposed Agricultural Use in the Initial Restoration Proposal by the Landscape Architects (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



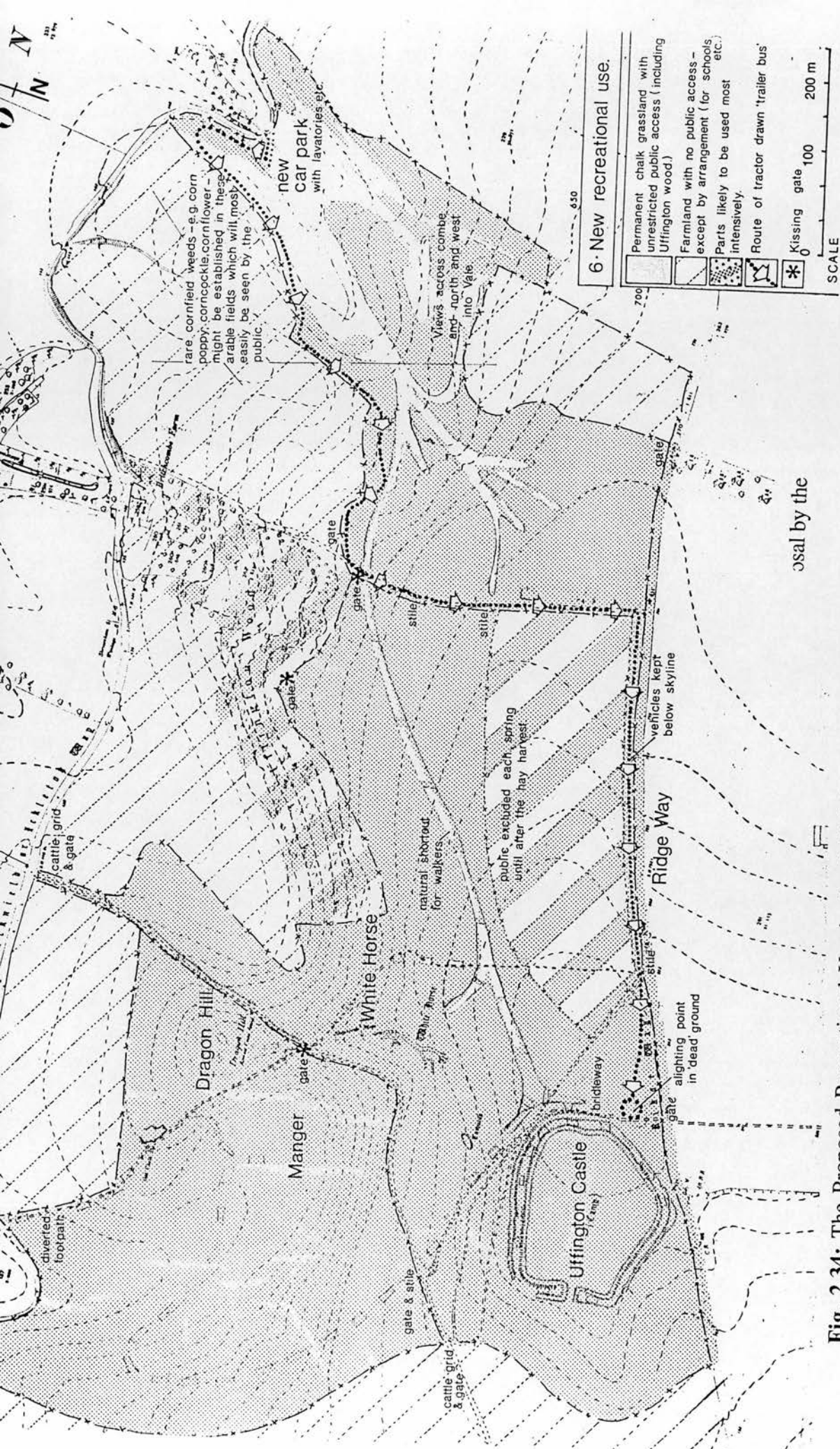


Fig. 2.34: The Proposed Recreational Use in the Initial Restoration Proposal by the Landscape Architects (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)

visitor movement, only slightly less than the existing situation. This first proposal also included a transport arrangement for disabled visitors that would have been difficult to administer on a regular basis, and would have introduced an obtrusive, hard-surfaced element to the visually sensitive area of the landscape (fig.2.34); and lastly the proposal would have claimed more land out of arable farming from the eastern area of the site than the estate ownership would have comfortably agreed to.

For these reasons, the landscape architects rejected their initial proposal in agreement with the parties concerned, and a much simpler and more ideal solution evolved from the use of a disused chalk pit on the western boundary of the site as the point of arrival. The well concealed depression of the quarry pit, one of the only two wooded areas on the site, the other being Uffington Wood, occupied an ideally central position in relation to the monuments and the Ridgeway and on the best access road to the hill which was unobtrusively lined by old hedgerows (fig.2.35). A new car park with appropriate capacity<sup>1</sup> was to be concealed and well designed within the naturally wooded depression of the pit, and a two-way access with passing points was to be provided through Woolstone Road (fig.2.36). At the southern end of the depression, an ideal access point to the site revealed a breathtaking view of the Vale of White Horse and a dramatic unfolding of a view of the Manger, Dragon Hill, White Horse and the Uffington Castle to the right as the access ascended further from the pit. The visitors arriving at the car park in the depression and emerging to experience these dramatic views would feel an appropriate and exciting sense of arrival, and would be instinctively and spontaneously drawn, without any aid, across the wide open downland to their main point of attraction, the White Horse. They would then, depending on their interests, descend to the Dragon Hill or ascend to the summit and the Ridgeway. As for the elderly and disabled visitors, the existing car park was to be reduced to a small lay-by, with one-way access through the Dragon Hill Road, joining the Woolstone Hill circulation (fig.2.37).

Therefore, the layout for the newly proposed site open to the public was centred on the chalk pit and was based on the resulting probable visitor movement, covering an extent of land agreeable to all the parties concerned. This included a provision of unobtrusively sited and fenced arable farming parcels to sustain the agricultural interests and with additional footpaths and access points accordingly laid out (fig.2.38 *cf.* fig.2.21). The layout of the site placed in the care of the National

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<sup>1</sup>The appropriate capacity of the new car park was ordered well below the estimated carrying capacity of the newly defined site, and was not determined by an estimate of the actual number of visitors then arriving at the site by car, as this proved to be the only way of controlling the visitor numbers.

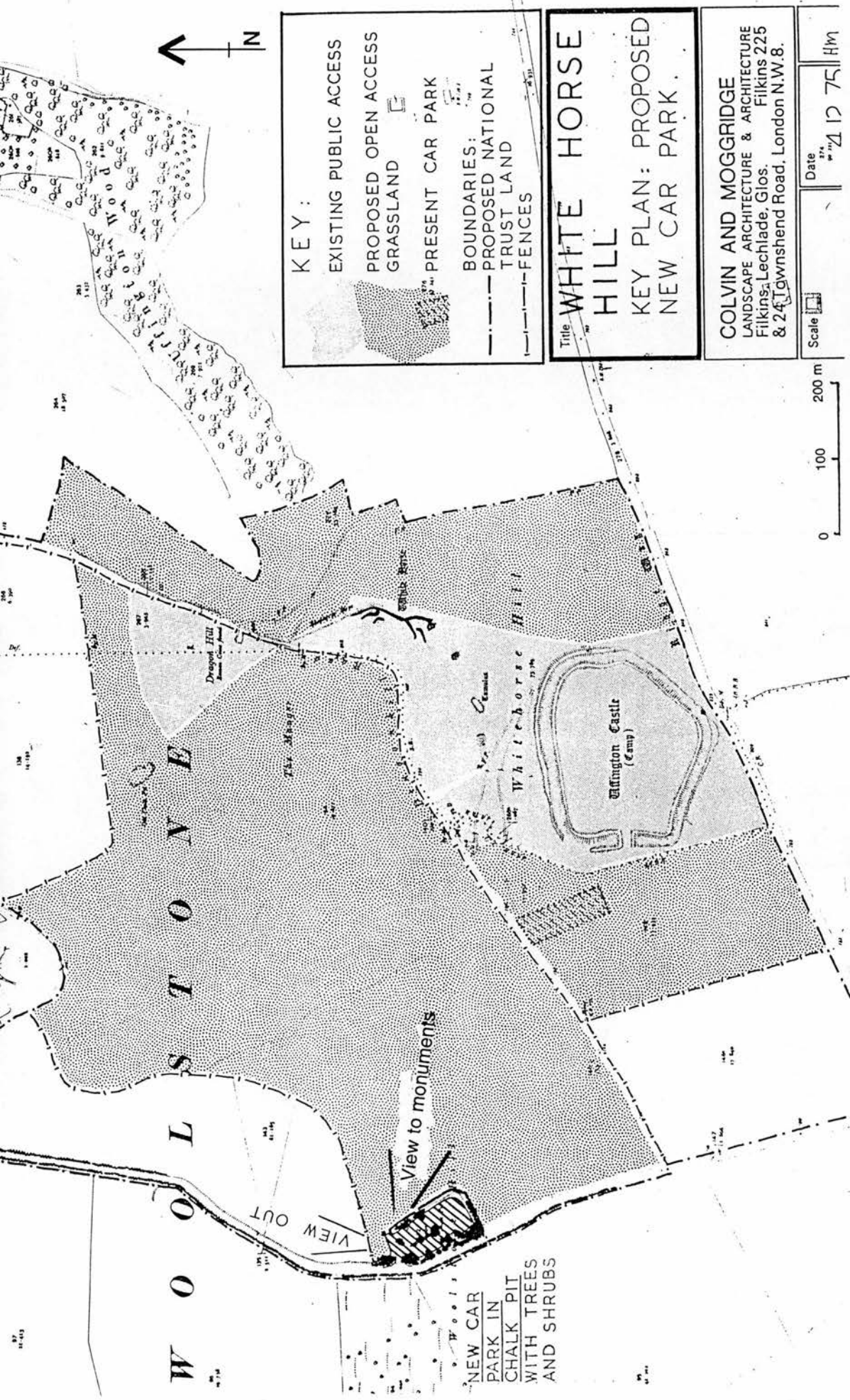


Fig. 2.35: Key Plan Illustrating the Concept of the Final Restoration Proposal by the Landscape Architects (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



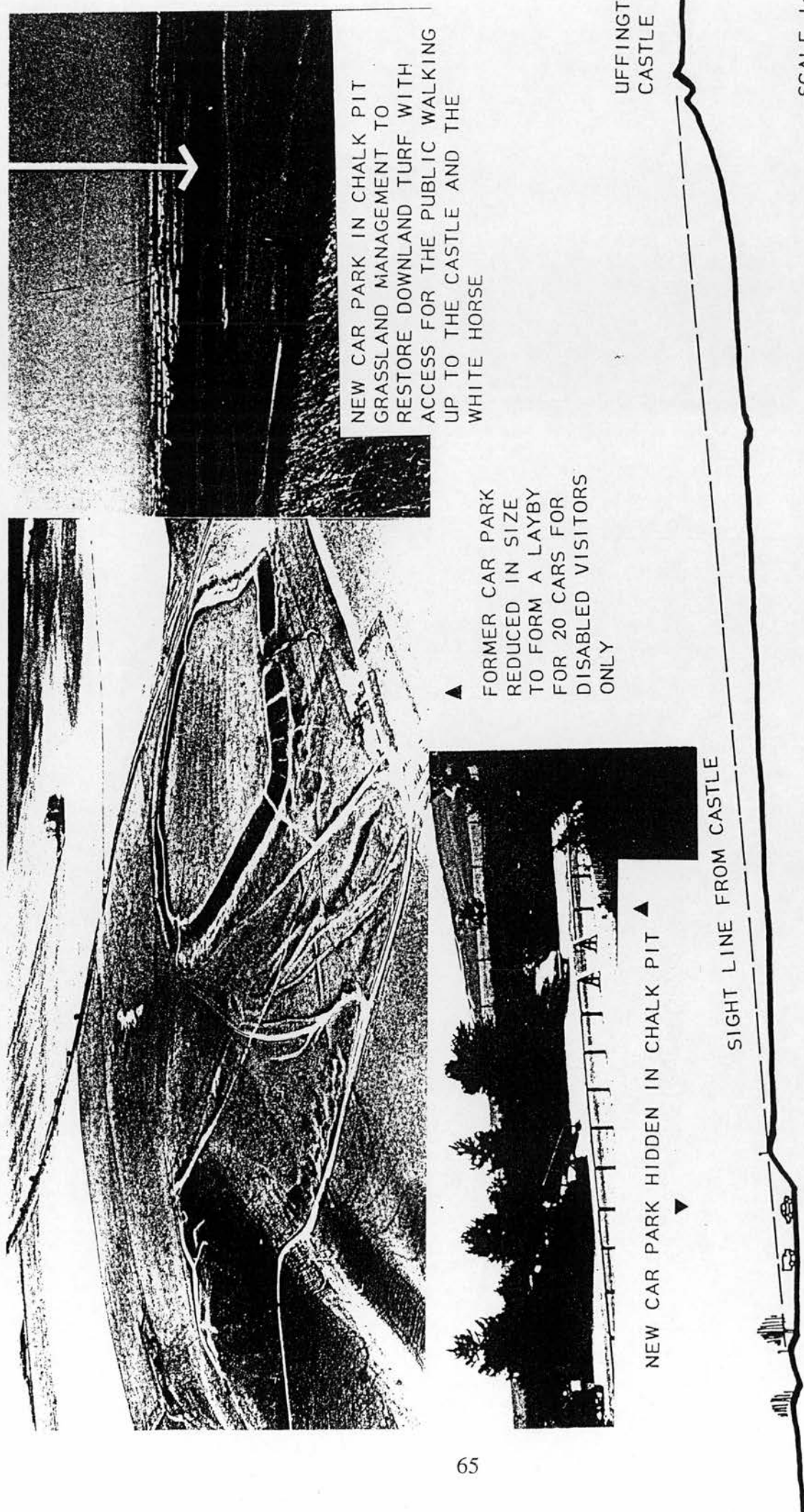


Fig. 2.36: Cross Section through the Site from the Chalk Pit to Uffington Castle Illustrating the Suitability of the Pit for a Totally Unobtrusive Car Park (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)









Trust was thus finalised in agreement with the parties concerned, within which the area open to the public was defined (fig.2.38). This latter area was to be managed solely by a unifying regime of grazing, following the initial restoration of derelict and eroded downland sward, aiming to achieve eventually the herb rich, semi-natural grassland vegetation of the chalk downlands (fig.2.39).

The master plan was duly approved by the estate and the other main parties involved, and the landscape architects then developed the scheme to its detailed level of design. Within the screening hedgerows, Woolstone Road was to be developed to a two-way traffic route, with separate entrance and exit points included for the proposed car park. Most of the visually critical, existing features of the chalk pit, including its regenerated natural vegetation, were retained (fig.2.40 and 2.41), and an informal, simple and straightforward parking layout was designed, totally concealed and sheltered in the depression (fig.2.42). It was boldly detailed and rural in character and included only the essential elements (fig.2.43, 2.44 and 2.45) and some additional planting of mixed trees and shrubs characteristic of the downland hedgerow vegetation (fig.2.46). The aim was to give the new car park an instant sense of maturity. Information signs were to be limited to one or two at the entrance to the site from the car park and only where they were deemed essential for the protection of the monuments. Similarly, no way-markers were considered appropriate or required elsewhere on the site, except for the access points to the Ridgeway and Wayland's Smithy. All fencing, gates and stiles were designed as unobtrusive, minimal details, and there were to be no finished footpaths on the site other than a few rough-finished flights of steps especially to avoid erosion on the castle ramparts and the Dragon Hill. The parking lay-by for the disabled was designed as a small, unobtrusive element, concealed by slightly raising an existing mounding along the northern edge.

The long term management proposal for the site under the guardianship of the National Trust was to re-seed and re-turf the areas of grassland prone to wear and tear and to manage the grassland solely by grazing, using sheep or a combination of sheep and cattle depending on the terrain.

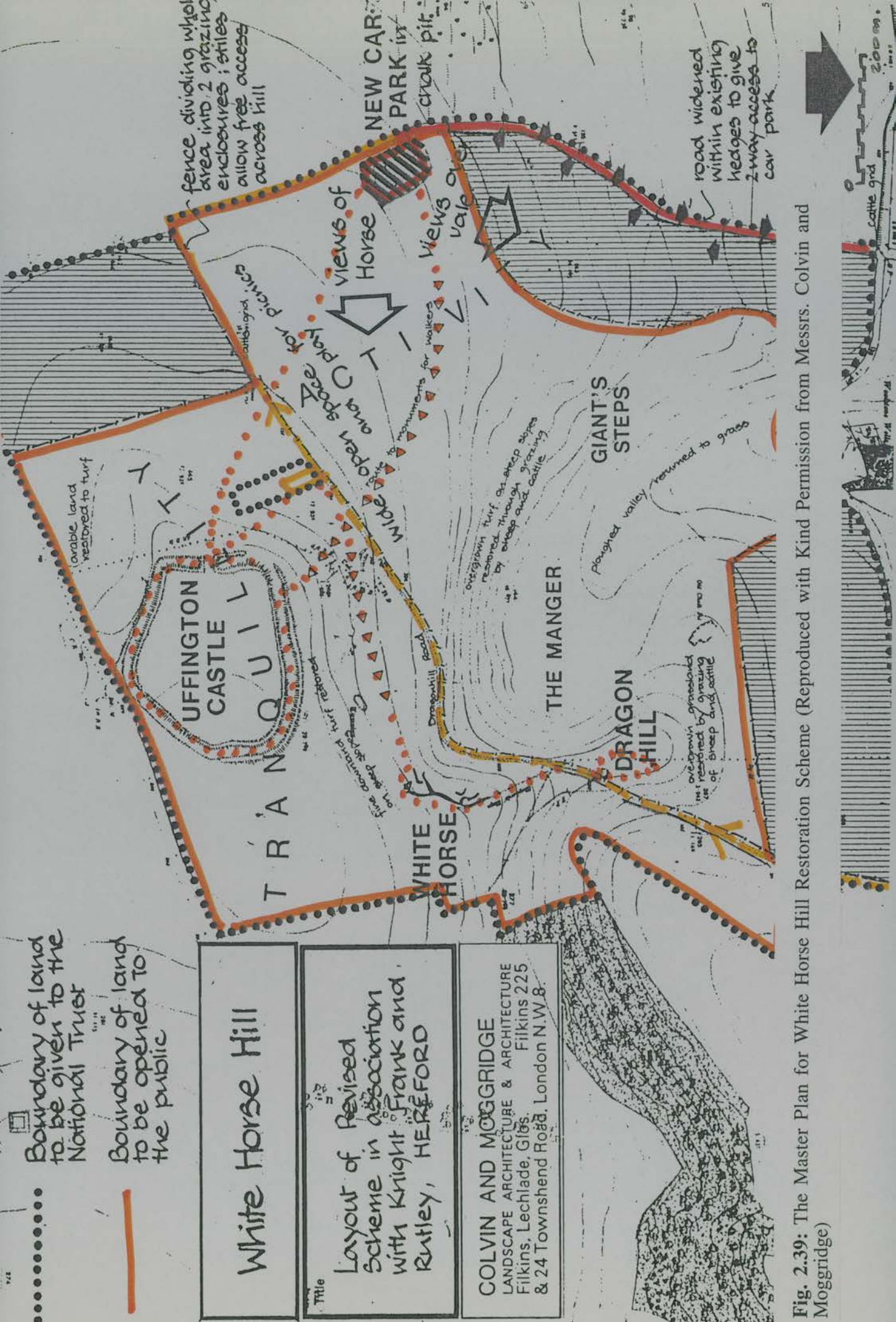
The detailed design of the White Horse Hill restoration scheme was duly approved by all the parties concerned in a public inquiry. As deemed necessary by the parties concerned, a separate car park for the Wayland's Smithy was designed to be sited by the Ridgeway with access via Knighton Hill Road (fig.2.47). All the construction work for the White Horse Hill scheme was completed by 1979, and was grant aided by the Countryside Commission. The restored and newly defined site was

Boundary of land  
to be opened to  
the public

# White Horse Hill

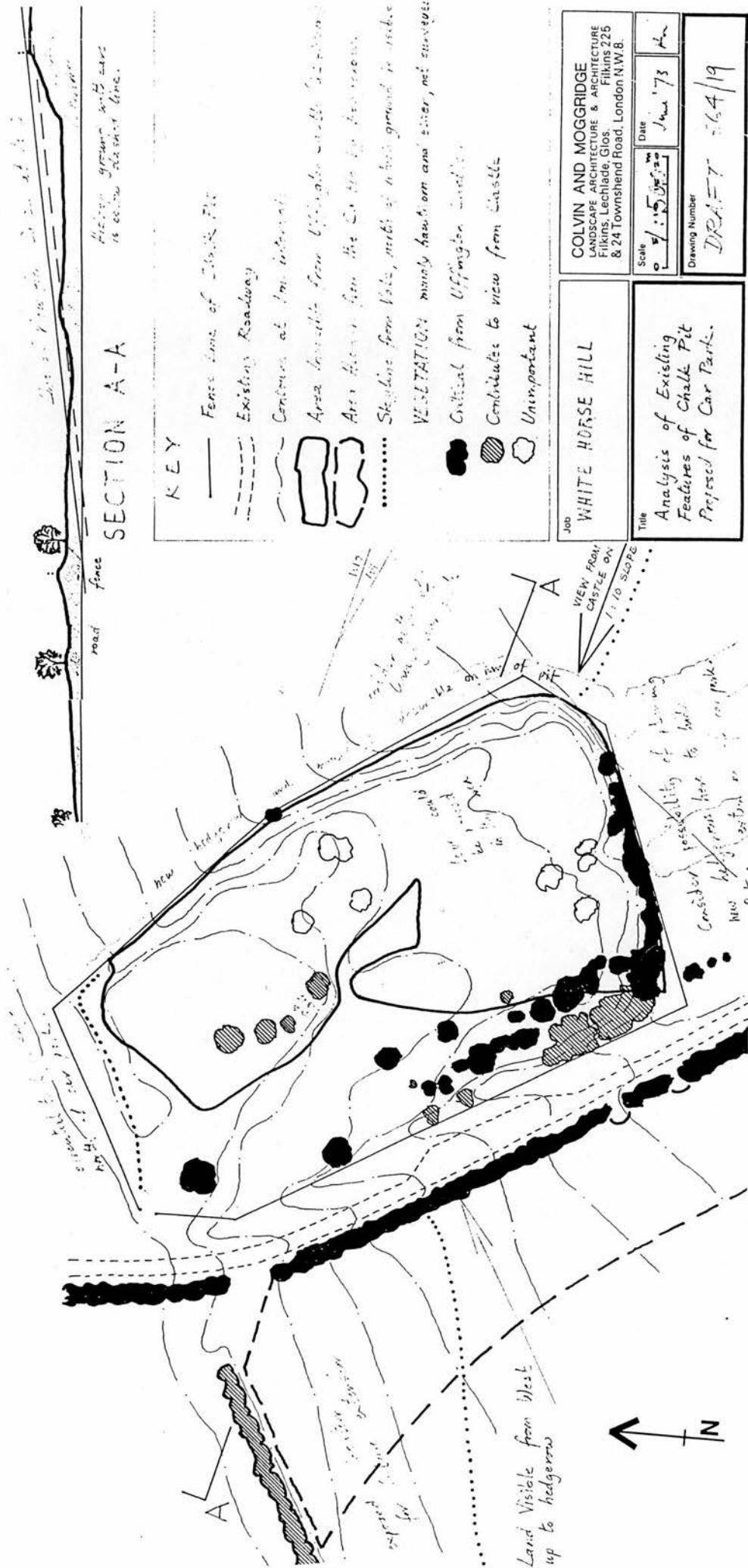
Layout of Revised  
Scheme in Association  
with Knight Frank and  
Rutley, HERFORD

**COLVIN AND MCGGRIDGE**  
LANDSCAPE ARCHITECTURE & ARCHITECTURE  
Filkins, Lechlade, Glos. Filkins 225  
& 24 Townshend Road, London NW 8.



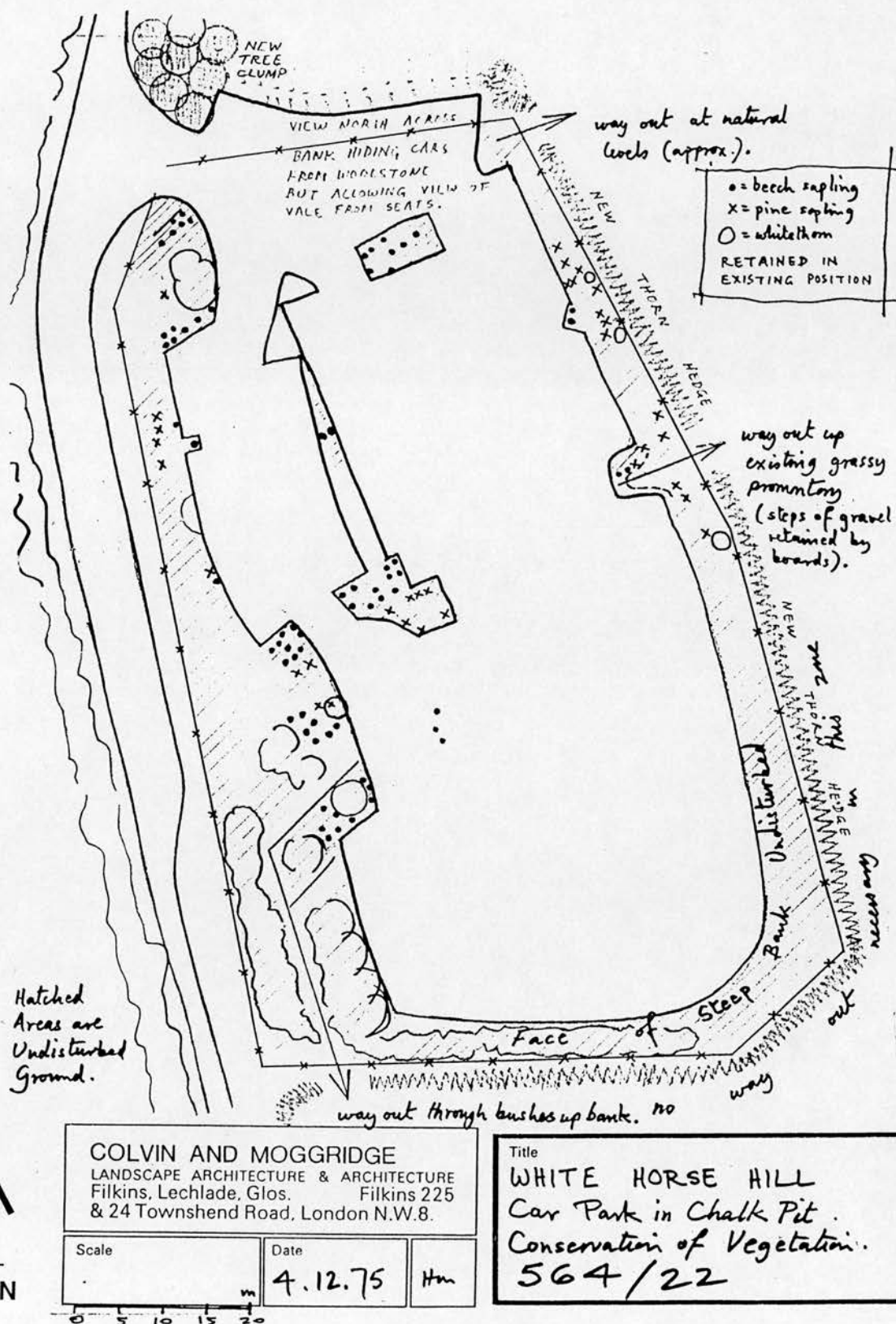
**Fig. 2.39:** The Master Plan for White Horse Hill Restoration Scheme (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



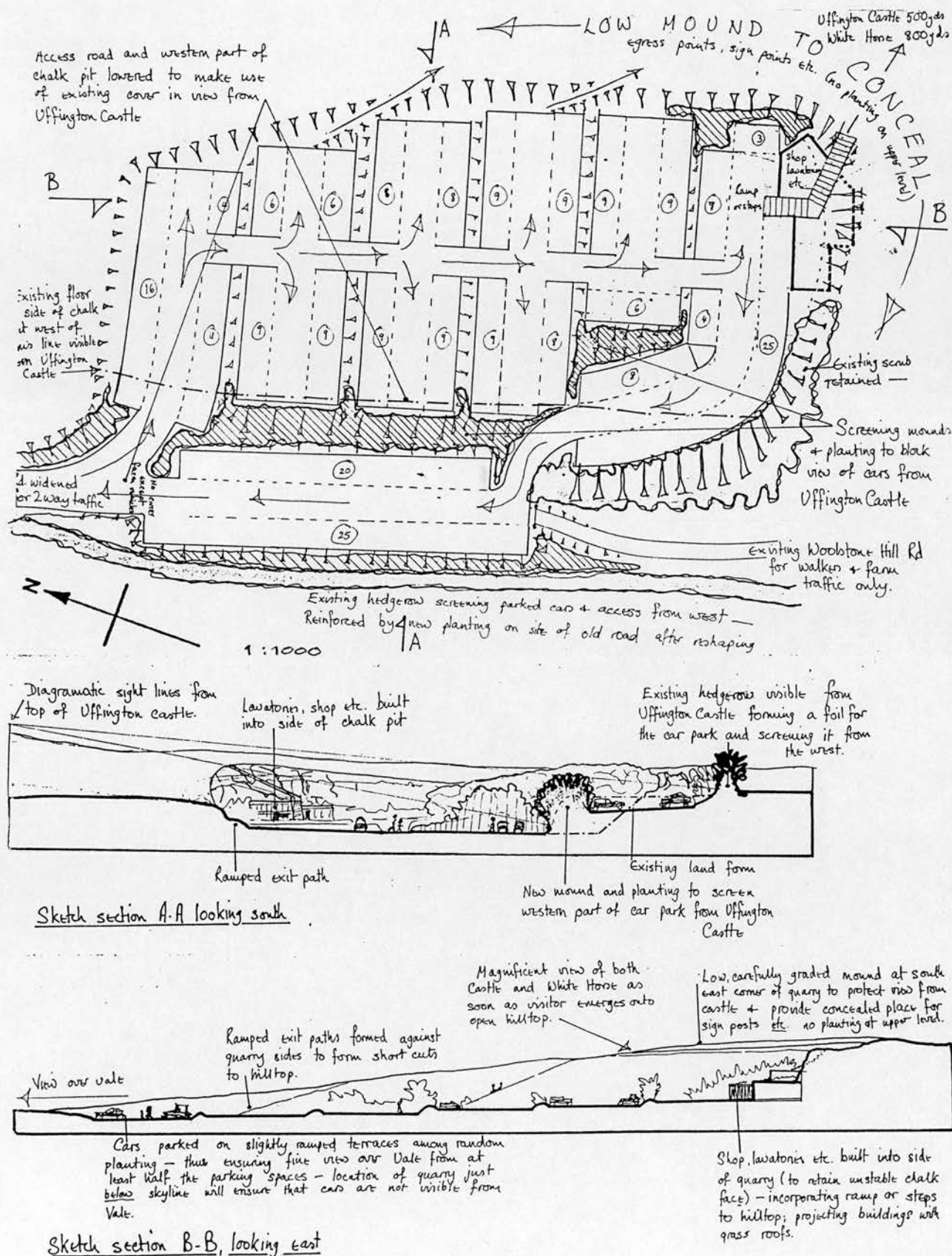


**Fig. 2.40:** Plan Showing the Preservation of Critical Existing Features of the Chalk Pit in Order to Give the Proposed Car Park a Long Established Character (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)





**Fig. 2.41:** Conservation of Self-sown, Semi-natural Vegetation in the Chalk Pit, Aiming to Create a Feeling of Continuity within the Proposed Car Park (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



**Fig. 2.42: Preliminary Layout Sketch of the Proposed Car Park in Chalk Pit**  
(Reproduced with Kind Permission from Messrs. Colvin and Moggridge)

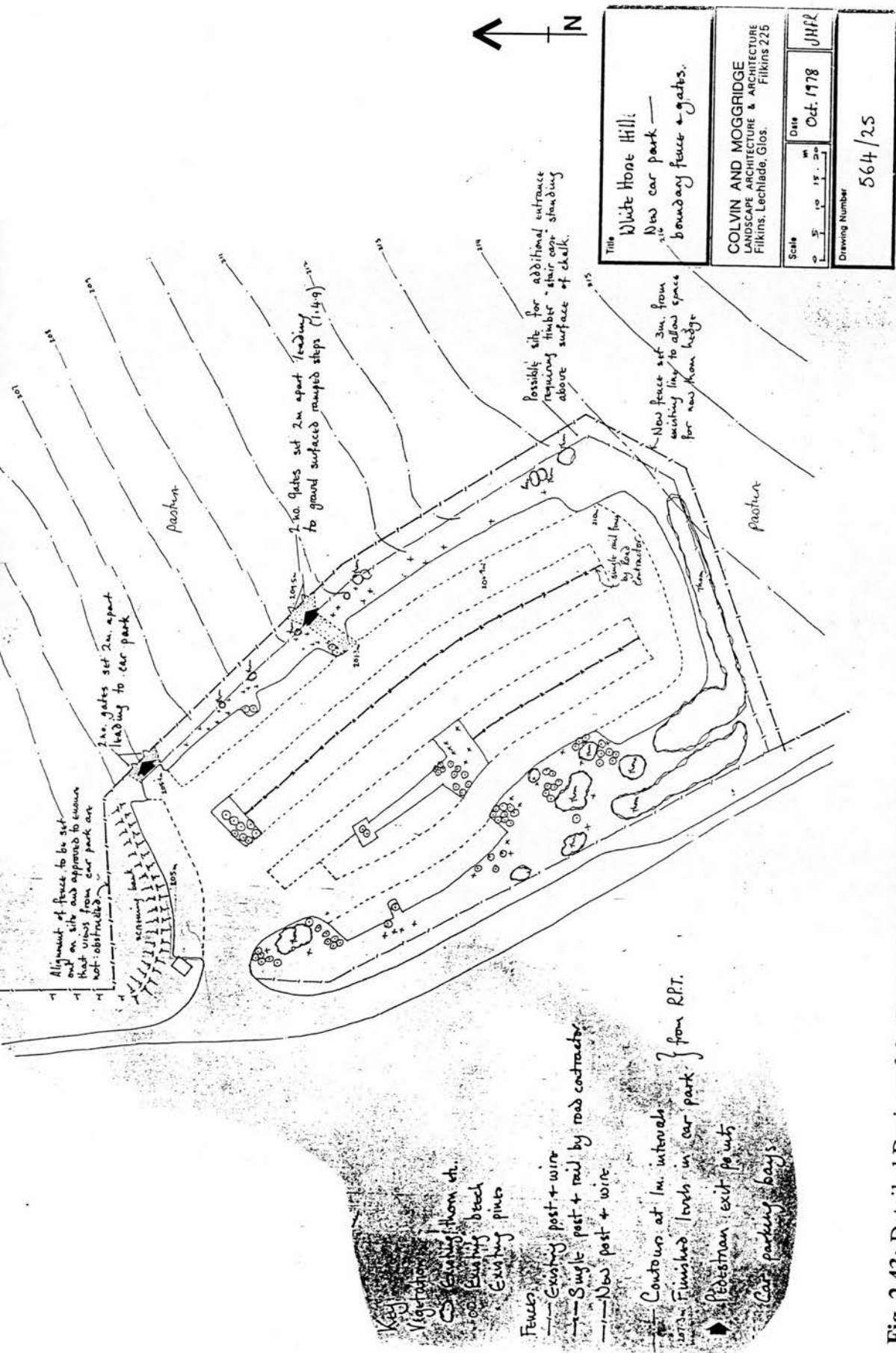
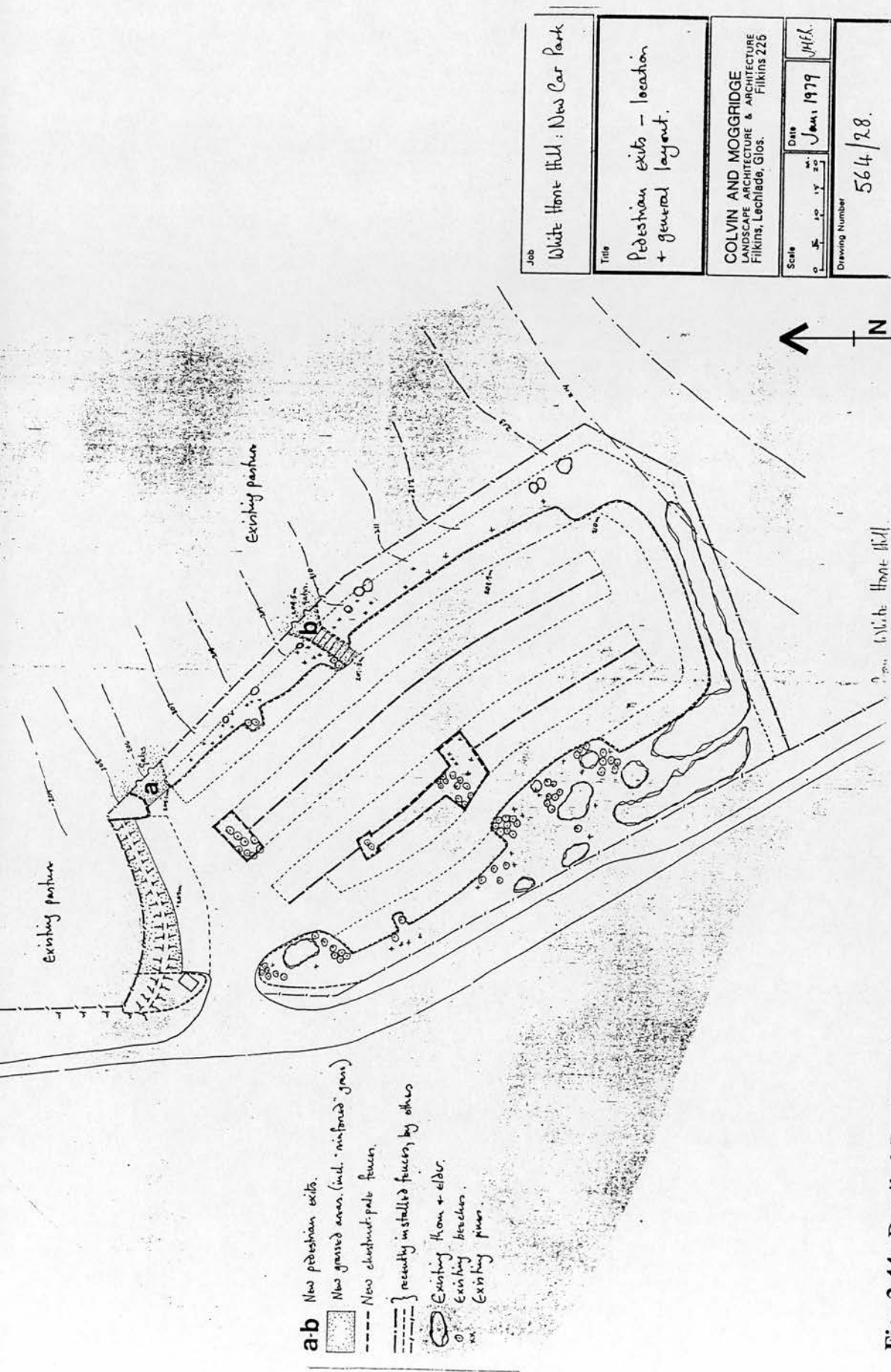
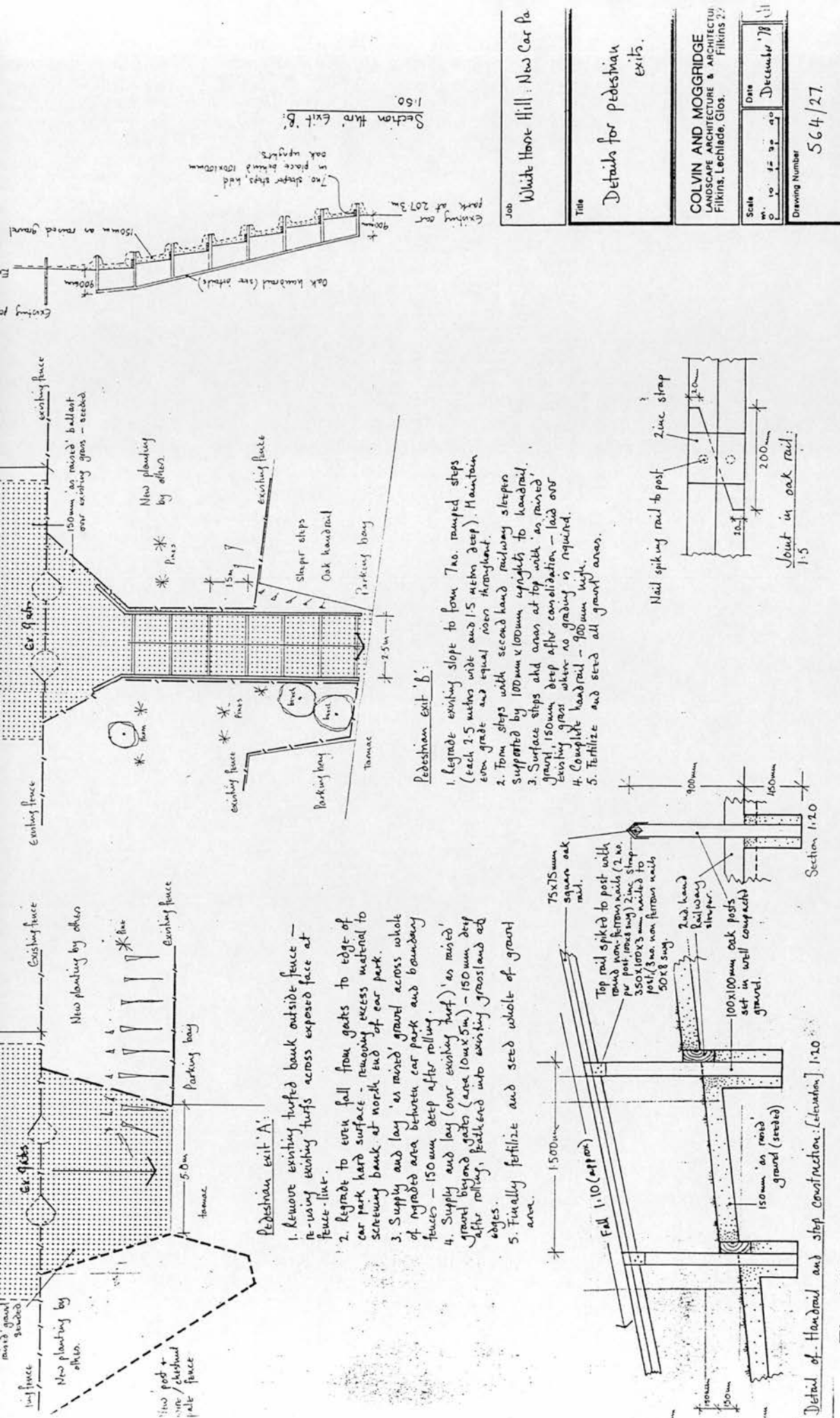


Fig. 2.43: Detailed Design of the Proposed Car Park for the White Horse Hill (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)





**Fig. 2.44:** Detailed Design of the Car Park for the White Horse Hill (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)



**Fig. 2.45: Bold and Simplistic Rural Detailing for the Proposed Car Park for White Horse Hill (Reproduced with Kind Permission from Messrs. Colvin and Moggidge)**

No.	Species	Size
30	Acer campestre	fathered
45	Crataegus monogyna	45-60 mm
45	Corylus avellana	45-60 mm
15	Eucalyptus europaea	45-60 mm
10	Fagus sylvatica	45-60 mm
40	Pinus spinosa (1+1)	30-45 mm
20	Rosa canina (1+2)	60-80 mm
25	Sambucus nigra	30-45 mm
10	Viburnum lantana	45-60 mm

### Planting notes:

- 1. Spacing:**  
Thorn hedge: set plants 1m x 1m apart in staggered rows located at centre of 3m wide space between new fence and top of chalk pit.  
Other trees/shrubs: as tight spacing 2m x 2m but adjusted locally to suit existing plants.
- 2. Grouping of species:** several plants of each species to be set in clumps or groups within each general area. Each species fitted in most favourable location - eg. shade tolerant species (hazel, elder) planted beneath existing beech trees etc.
- 3. Weeding + fertilising:** Set before planting (chemically or by hand) incorporate approved slow release general fertiliser at time of planting, weed during first growing season and beat up the following winter season.

Job  
**White Horse Hill**

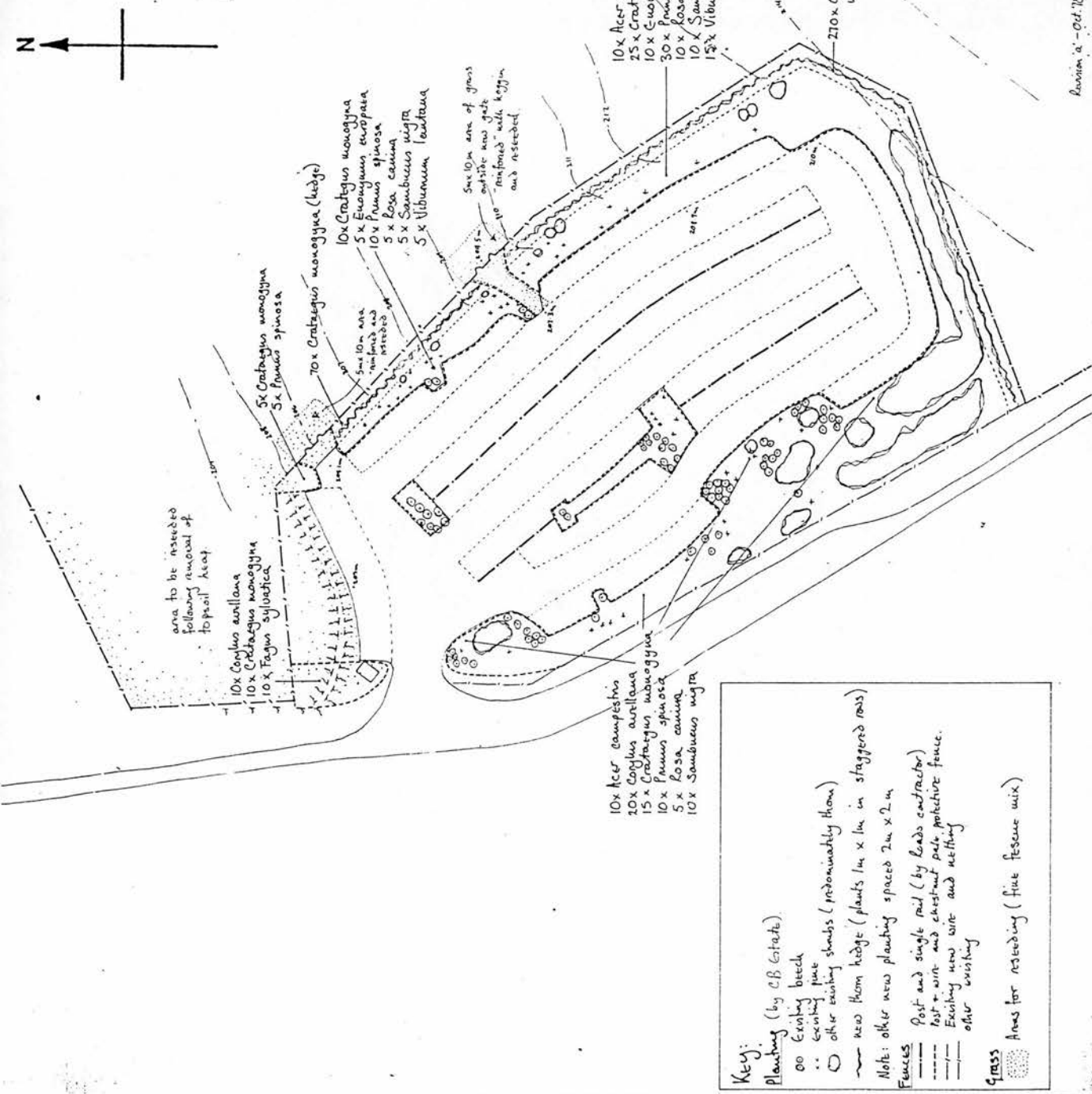
Title  
**Planting plan for New car park**

**COLVIN AND MOGGIDGE**  
LANDSCAPE ARCHITECTURE & ARCHITECTURE  
Filkins, Lechlade, Glos.

Scale  
0 5 10 15 20 m.

Date  
**October '78**

Drawing Number  
**JMR**



Revision a - Oct. 78 Plant schedule

Fig. 2.46: Planting Detail of the Chalk Pit for White Horse Hill (Reproduced with Kind Permission from Messrs. Colvin and Moggidge)



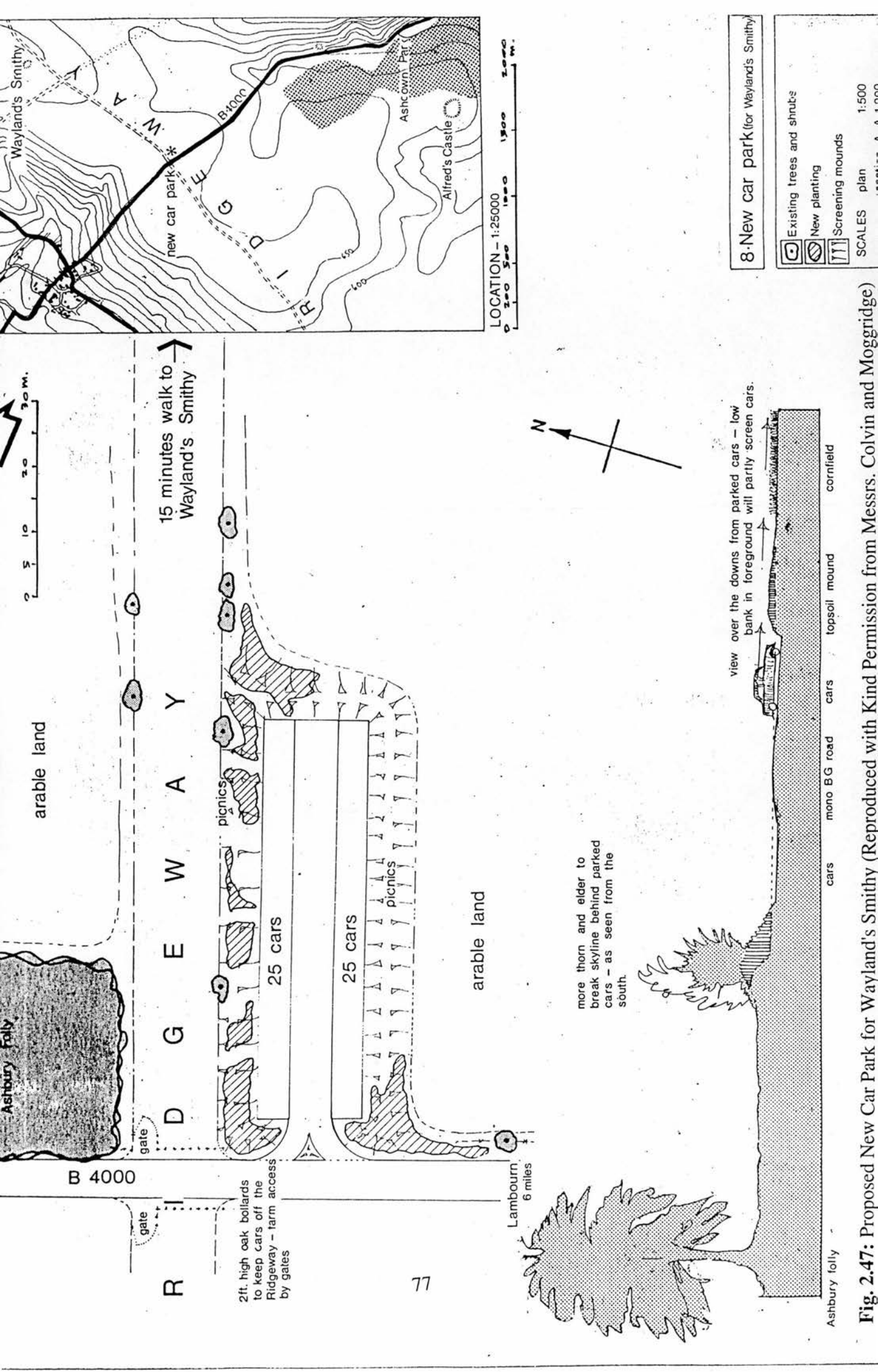


Fig. 2.47: Proposed New Car Park for Wayland's Smithy (Reproduced with Kind Permission from Messrs. Colvin and Moggridge)

then handed over to the National Trust, with an upkeep endowment in January 1979. Since then, the Trust has been responsible for the management of the site, while the scheduled monuments within have continued to remain in the care of the Inspectorate of Ancient Monuments and later the English Heritage<sup>1</sup>.

The scheme received a Europa Nostra award in 1979<sup>2</sup> and was chosen as the runner up in the environment design category of the 1987 BBC design awards<sup>3</sup>.

## **2.4 The Scheme's Appraisal and Discussion**

For the purpose of this thesis, three separate study visits were made to the White Horse Hill, ten years after the restoration scheme's completion. The visits took place between Autumn 1989 and Summer 1990. Each visit was arranged to fall on a peak bank holiday of a given season in order to appreciate as fully as possible the seasonal variations in visitor use and their implications for management. The site and its landscape were first placed in their wider regional context and was then studied in closer detail.

The visual characteristics of the hill were assessed from prominent viewpoints. These ranged in distance from 15-20 km north of the escarpment and within the Upper Thames Valley, to close up points in the Vale of White Horse 2-4 km away and immediately to north. Beyond a distance of 15 km, an extensive length of the Berkshire Downs emerges to view, with the White Horse Hill rising above as the summit. It is at this distance therefore that the visual relationship of the summit hill and the rest of the escarpment can be best appreciated. The summit hill rises simply and strongly and reads as a bold and harmonious formation, no longer cluttered by any obtrusive element or inappropriate land use within the site; and the White Horse itself is seen as a very fine outline that blends perfectly with its setting. In sharp contrast to this simplicity and harmony, the rest of the down escarpment appears as a patchwork of uniformly square, arable fields. These fields with their plough patterns and crop lines read very dominantly over more subtle variations in land-form or in the little remaining downland vegetation, and strongly contradict the harmonious expression of the restored White Horse Hill. This contrast becomes even more pronounced during seasons when crops such as oil seed rape or vetch ripen to striking colours. The result

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<sup>1</sup>Based on information provided by Messrs. Colvin & Moggridge Landscape Consultants and the Area Archaeological Advisor, The National Trust, Head office, Cirencester.

<sup>2</sup>Based on information provided by Messrs. Colvin & Moggridge Landscape Consultants.

<sup>3</sup>**Landscape Design Extra**, No.46, July 1994, p.1

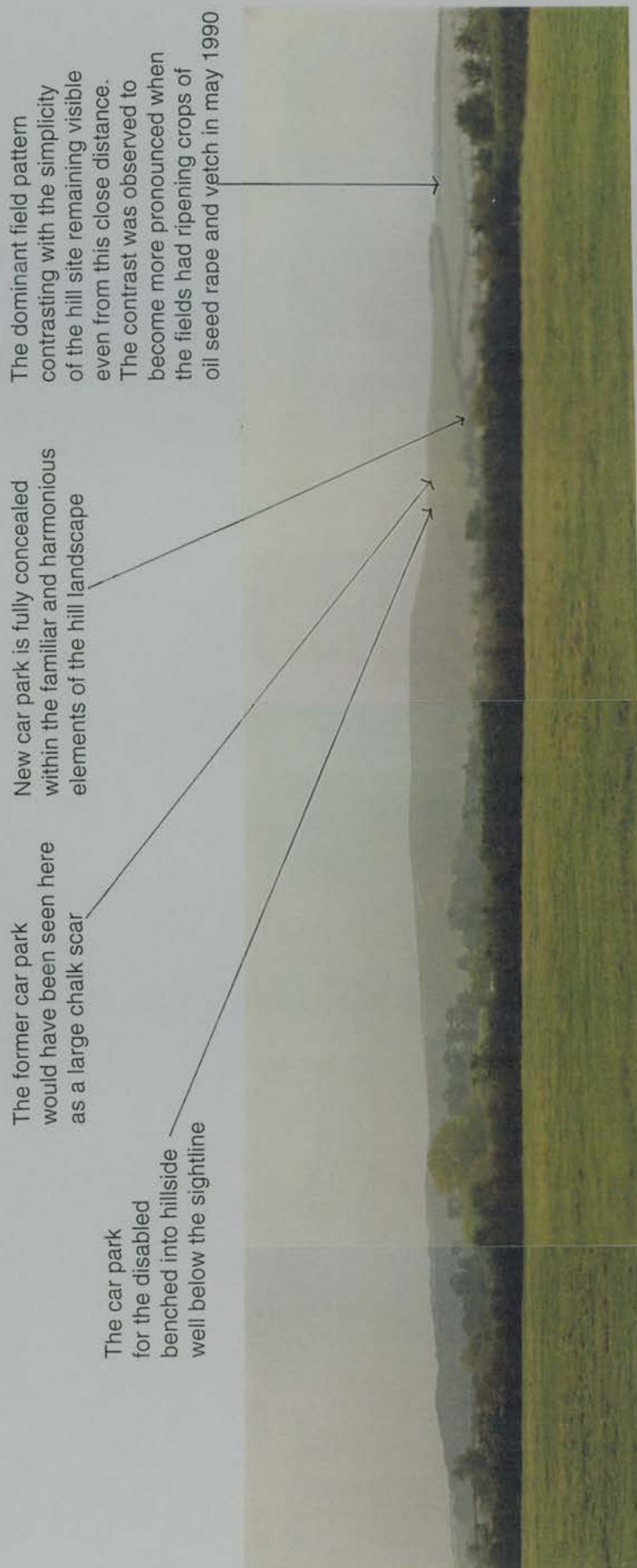
is that the summit hill appears from this distance as a separate unit with hardly any affinity to the rest of its escarpment (fig.2.10 View A and fig.2.48).

As the site is approached, the summit seems to steepen and its flanks to fall away, emphasising the increasing prominence of the hill figure in its gleaming white outline. However, a considerable length of the flanking escarpment remains still visible from a distance down to 4-5 km north of the hill, and, as a result, the dominant land use pattern on the flanks competes with the visual force of the hill figure and impairs it (*cf.* fig.2.10 View A, B and Fig.2.48).

Viewed from a distance of less than 4 km, the summit hill appears even steeper, with the rest of the escarpment virtually disappearing from sight. It is therefore from this close range that the visual quality of the hill can be best appreciated and the contribution of the restoration scheme can be fully evaluated. The White Horse now attains its full eminence over the surrounding landscape, unimpeded by any other feature competing with its visual force. This force is made stronger by the coherence of colour and texture given by the grazing regime imposed over the whole site under the restoration scheme. Adding still further to this strength is the skilful concealment firstly of the visitors' car park in the old hillside chalk pit, and the smaller lay-by for disabled visitors, benched into the hillside; the visitors' car park is so well hidden in the wooded chalk pit that it is hard to identify its location from this distance without foreknowledge of its site. The lay-by, together with other potentially large-scale intrusions such as permanent arable parcels, are all sited well below the sightlines to the summit, and allow the figure of the horse and the adjacent outlines of the Uffington Castle to read in lofty and splendid isolation (fig.2.10 View B and 2.48).

Comparison of the Ordnance Survey of 1900 (fig.2.16) and the master plan for White Horse Hill Restoration Scheme (fig.2.39) shows that much of the achievements of the scheme are essentially comparable in land use terms with the situation recorded in the late nineteenth century. The difference is that three permanent arable parcels have been sustained by the scheme. These are insignificant in extent compared with the massive encroachment of arable farming that had affected the site before the scheme (fig.2.21). Furthermore, they have been discreetly sited not to be visible from the valley below. Similarly, the character of the landscape achieved by the scheme is much more compatible with what is fairly reliably depicted in two of the early eighteenth century engravings of the hill (fig.2.11). What the scheme has essentially achieved therefore has been to identify the high rate of change in the landscape over the last four decades and to implement improvements and a





**Fig. 2.48:** Panoramic View of the White Horse Hill from the Vale of White Horse (Fig. 2.9:View B) Photographed Ten Years After the Completion of the Restoration Scheme. The evocative force of the horse in its union with the surrounding land-form has been given its full expression by the scheme; no element contrasting or contradicting with this unity is now visible within the restored site. However, the field pattern on the escarpment on the right contradicts the simplicity of the restored site when viewed from this distance.

management attitude which hark back to the slower pace of earlier times and which safeguard the site's essential spirit of place. Within this framework, the scheme has successfully accommodated conservation and recreation needs without affecting the economic interests.

This achievement in essence qualifies the scheme as a significant example of archaeological resource management in Britain. It illustrates a fundamental principle that archaeological resources may be conserved within the dynamism of a landscape in which they are an inherent and integral part of, rather than parcelled and isolated in time and meaning<sup>1</sup>. Indeed, the restored site in its prominent position on the escarpment shows very pointedly how the rest of the surrounding downland may also be rescued from its present often fussy and overwrought arable subdivision back to an earlier simplicity: a simplicity far more appropriate to the recent designation of the downland as an Area of Outstanding Natural Beauty and perfectly viable economically (cf. fig.2.16, 2.17 and 2.21).

Since completion, and over the last ten years, the National Trust's management of the site has been exemplary. Within this short period the restored site has reached a unifying maturity that gives a long-established, even age-old look to all new elements. From the re-detailed main approach road and new car park to minor elements like fencing and reclaimed pastures, all new features read as if they have always been part of the site landscape (fig.2.49 and 2.50). The most significant overall achievement of the scheme is the success of the virtually unaided and unmarked visitor circulation and its easy settlement into the site landscape (fig.2.50, 2.51, 2.52, 2.53 and 2.54). The essence of the landscape architects' contribution to the scheme is that it has been a deliberate understatement of detailed design. They have carefully and skilfully avoided introducing any new manmade statement to the landscape in competition with the hill figure.

The achievements of the scheme amply demonstrate that Colvin and Moggridge as landscape architects have played a decisive role of co-ordination at least within the site allocated for the restoration. Unfortunately though, their role has had no effect on the landscape quality of the surrounding down escarpment, the result of which has been the disconcerting contrast between the restored site and its

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<sup>1</sup>Bender B. *Theorising Landscape, and the Prehistoric Landscape of Stonehenge*, **Man**, No.27, 1992, pp.735-755: "Generally speaking those involved in the conservation, preservation and mummification of the landscape attempt to 'freeze' the past, attempt to make it something that can be excavated, packaged, presented -something over and done with. They create origin myths rather than an on-going process."; also see Bender B. (Ed.) (1993) *op. cit.*, p.270; and Darvill T. C. (1987b) *op. cit.*, pp.1-5.



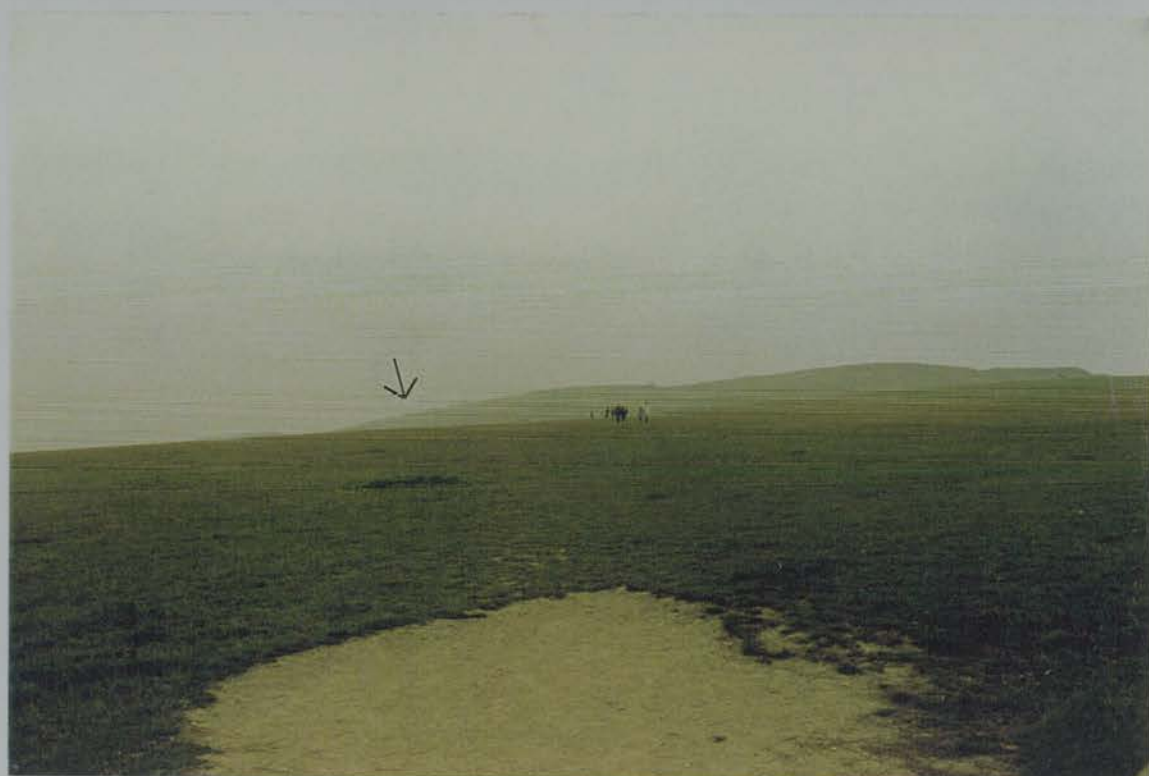
**Fig. 2.49:** The Car Park for White Horse Hill, Hidden in the Chalk Pit, Viewed from its South-eastern Corner, Ten Years After Its Construction. The simplicity of its detailing and the planting mix of downland hedegrow species inserted into naturally growing vegetation give a much older appearance to the car park, and makes it an appropriate setting for arrival in the ancient site.





**Fig. 2.50:** Above: The North-eastern Part of the White Horse Hill Car Park, Showing the Main Entrance Point to the Site at the Far End, and the Mixing of Scots Pine into Planting for Evergreen Screening. Note the foot-worn flight to the site on the right left devoid of planting as an alternative exit point.

Below: The Only Interpretation Sign Within the Hill Site.



**Fig. 2.51:** The View of the Monuments from the Main Exit Point of the Car Park. The White Horse, seen clearly from here, draws the visitors through an unaided desire-line through the peaceful downland, a key conceptual principle of the restoration design now working perfectly. The chalk scar in the foreground is an unavoidable recurrence during summer months that the National Trust reinstates in the winter months.





**Fig. 2.52:** Visitor Circulation Continues Successfully through the Intended, but Unmarked Desire-line and Follows through the Long-established Foot Track to the White Horse. Here, the downland is subject to severe erosion during the summer months, which the National Trust reinstates during winter.





**Fig. 2.53:** Above: The White Horse Seen from the End of the Spontaneous Visitor Route, with the Manger Seen Below. The figure is now maintained in a regular regime of edging and chalk filling. Except for a small sign requesting visitors not to walk on the figure there is no other form of hindrance to the view from here.

Below: The 'Foot-mown' Visitor Desire-line Towards the Horse Figure. A majority of the visitors take the same route back for their ascent to Uffington Castle or back to the car park. Note the old track being used by the locals as a bridleway.



**Fig. 2.54:** Above: View West from the Ramparts of Uffington Castle, a Well Harmonised Setting in Comparison with the Situation Ten Years Earlier. The main car park is hidden in the widening part of the hedgerow. The small car park for the disabled is set well behind the skyline, and is not obtrusive. The arable farming enclosure blends well with the agricultural setting beyond the site.

Below: Car Park for the Disabled Set Behind the Skyline and Made Less Obtrusive from Below by Raising the Northern Edge-mounding. Note the well managed and well used downland, peaceful without scars or clutter.

surrounding landscape as described earlier in the discussion. Considering the extent of the Compton Beauchamp Estate (see fig.2.19), it may be argued that the landscape architects have had the opportunity to recommend restoration of a larger and more representative area. This could have ideally incorporated the visually most sensitive north-western part of the escarpment and included many related features of archaeological importance, Wayland's Smithy and a longer stretch of the Ridgeway for example. This perhaps exposes a weakness in the landscape architects' role and reflects on the limitations of the client's brief, but at least the landscape architects have set a clear example of how this may yet be improved in the future.



## ***Chapter Three***

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### ***Brenig Reservoir Scheme***

Brenig Reservoir is a good example of a large-scale development scheme bringing about dramatic and drastic change in a landscape slowly evolved over millennia. The scheme at Brenig was to modify a rural valley landscape archaeologically rich and diverse with evidence of occupation and settlement ranging from the Neolithic to the post-medieval, including a well preserved Bronze Age cemetery and a traditional land use pattern continued largely unchanged from these early times. This case study examines in some detail the landscape architects' efforts in integrating the large reservoir and its dam, pumping stations, pipelines and visitor recreational facilities with the valley landscape, together with measures to control and balance the expansion of economic forestry that had already claimed a disproportionate share of the valley since the 1930's. It then presents the findings of the rescue archaeological investigation which took place ahead of flooding for the reservoir and describes the joint efforts of the archaeologists and the landscape architects in reconstructing the excavated monuments and presenting them within an area of the valley preserved for archaeological and ecological interest. The case study concludes by evaluating the landscape architects' success in conserving the archaeological and ecological value of the valley and therefore its landscape character or the essential spirit of place.

#### **3.1 Brenig Reservoir and its Functions**

Llyn Brenig, a 428 ha regulating reservoir fed by Afon Brenig and its tributary Afon Fechan, is situated 8 km north of Cerrig-y-Drudion on the A5, in the county Clwyd of north central Wales. The reservoir and its auxiliary developments occupy the northern half of Brenig valley, a forked valley formed by the rivers Brenig and Fechan on the upland plateau of Mynydd Hiraethog. The rock-filled structure of the dam, 1.2 km long and 25 to 40 m in height, is located across the valley about 2 km north of Pentre-Llyn Cymmer, the village farther down the valley (fig.3.1 and 3.2).

First planned at the turn of the century, the reservoir was constructed between 1973 and 1976 by the Welsh Water Authority as part of the national water supply plan which developed Alwen reservoir nearby. Llyn Brenig is used with Llyn Celyn and Llyn Tegid (Lake Bala) to regulate the river Dee, maintaining its level and supporting abstractions far downstream, making the river a natural pipeline<sup>1</sup>.

In addition to its main function, the reservoir provides the focus of a country park, supported by the extensive forestry and open moorland surrounding it. Llyn Brenig provides recreational facilities ranging from water-based and waterside activities to nature trails, archaeological trails and visitor interpretation facilities.

Llyn Brenig is the latest and the most extensive in the series of artificial lakes constructed using upland valleys of Mynydd Hiraethog. This wide range of hills, 350-550 m above sea level, is formed of Silurian grits and shales, and extends between the Conwy Valley and the Vale of Clwyd. It is a monotonous heathy plateau, deeply dissected by rivers and fast flowing streams fed by the annual rainfall of over 150 cm. The higher ground is wide open moor which has never been fully tamed<sup>2</sup>. The area is noted for its natural beauty, history, legends and poetry<sup>3</sup>.

Considering its proximity to the over-visited and over-used tourist attractions of Snowdonia, the potential of Mynydd Hiraethog area to become a counter attraction was fully recognised by the local planning authorities at the time the strategic water catchment scheme reached Brenig<sup>4</sup>. An appraisal and planning policy for the Aled / Hiraethog area published by the County Planning Officer in April 1970 stressed that *"future schemes for water supply must have regard to amenity and, together with areas of water already existing, consideration given to the use of such areas for recreational pursuits. Strict control will be exercised, to ensure that such development is not inimical to the amenities of the area and that proposals are consistent with current demand"*<sup>5</sup>.

The forethought and consideration given, in line with the above planning policy, to amenity and historical and ecological value of the landscape from the

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<sup>1</sup>Based on the leaflet **Man at Brenig** by the Welsh Water Authority produced on the inauguration of Brenig Reservoir, undated (ISBN. 0-86097-018-3).

<sup>2</sup>Allen D. *Excavations at Hafod-y-Nant Criafolen, Brenig Valley, Clwyd 1972-73*, **Post-medieval Archaeology**, vol. 13, 1979, p.2

<sup>3</sup>Welsh Water Authority *op. cit.*

<sup>4</sup>Selkirk A. *Brenig*, **Current Archaeology**, No.55, 1977, p.230; and Moggridge H. *Brenig Reservoir*, **Landscape Planning**, No.10, 1983, p.67

<sup>5</sup>Clwyd County Council, *Appraisal and Planning Policy for Aled / Hiraethog Area*, April 1970, Clwyd, p.173



Fig. 3.1: Location of Brenig Reservoir in North Wales (Based on The New Oxford School Atlas, Oxford University Press, 1990, p.38).





Fig. 3.2: Local Landscape Setting of Brenig Reservoir 18 years after Completion in 1976 (Based on Ordnance Survey of Great Britain, 1: 50,000, Denbigh, Sheet 116, 1994)

initial stages of the project make the Brenig reservoir scheme unique amongst similar schemes developed earlier in the region<sup>1</sup>, and commissioning the consultancy of a Landscape Architect at an early stage of the project to pursue such aims makes the scheme a significant case for the present study.

### 3.2 The Scheme

In June 1970 Messrs. Colvin & Moggridge were appointed by the Dee and Clwyd River Authority as landscape consultants to the proposed scheme. Their appointment was subsequent to the selection of site for the reservoir which had been under consideration since 1907. The consulting engineers, Messrs Binnie & Partners had produced a report in February 1970. This recommended the site for the dam and a proposal envisaging construction in two stages (fig.3.3A, 3.3B i and 3.3B ii), with arrangements for pumping water into the reservoir from 3 stations positioned 5, 9 and 14 miles downstream (Fig 3.15).

The brief of the Landscape architects was to study the impact of the proposals on the landscape and to recommend ways in which the proposed changes could be integrated without degrading its existing landscape value, in order to preserve its amenity and potential for recreation. Having completed a year long investigation on the impact of the reservoir upon the regional landscape as well as the more immediate environs, the Landscape Architects produced an analytical report of their recommendations in May 1971.

Their immediate response, on completion of the study, was that *"the site proposed was an excellent one from the landscape point of view"*<sup>2</sup>. The report indicates their *"whole-hearted commitment to overcoming the landscape problems created by such extensive proposals"*. The objective of the proposals put forward therefore by the report was to *"ensure by careful forethought and design, that the landscape should not be degraded, but rather enhanced by the changes to come"*. This was to be achieved fundamentally by *"detailing the construction works to cause minimum disruption to the existing land-forms, relating the essential forms of the engineering works with sympathy and respect to the surrounding land-forms as well as the existing vegetation and, together with some adjustments of land-form and*

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<sup>1</sup>Welsh Water Authority *op. cit.*

<sup>2</sup>Quoted from the report by the landscape architects: Brenig Reservoir Scheme: Landscape Report, Colvin & Moggridge, May 1971.



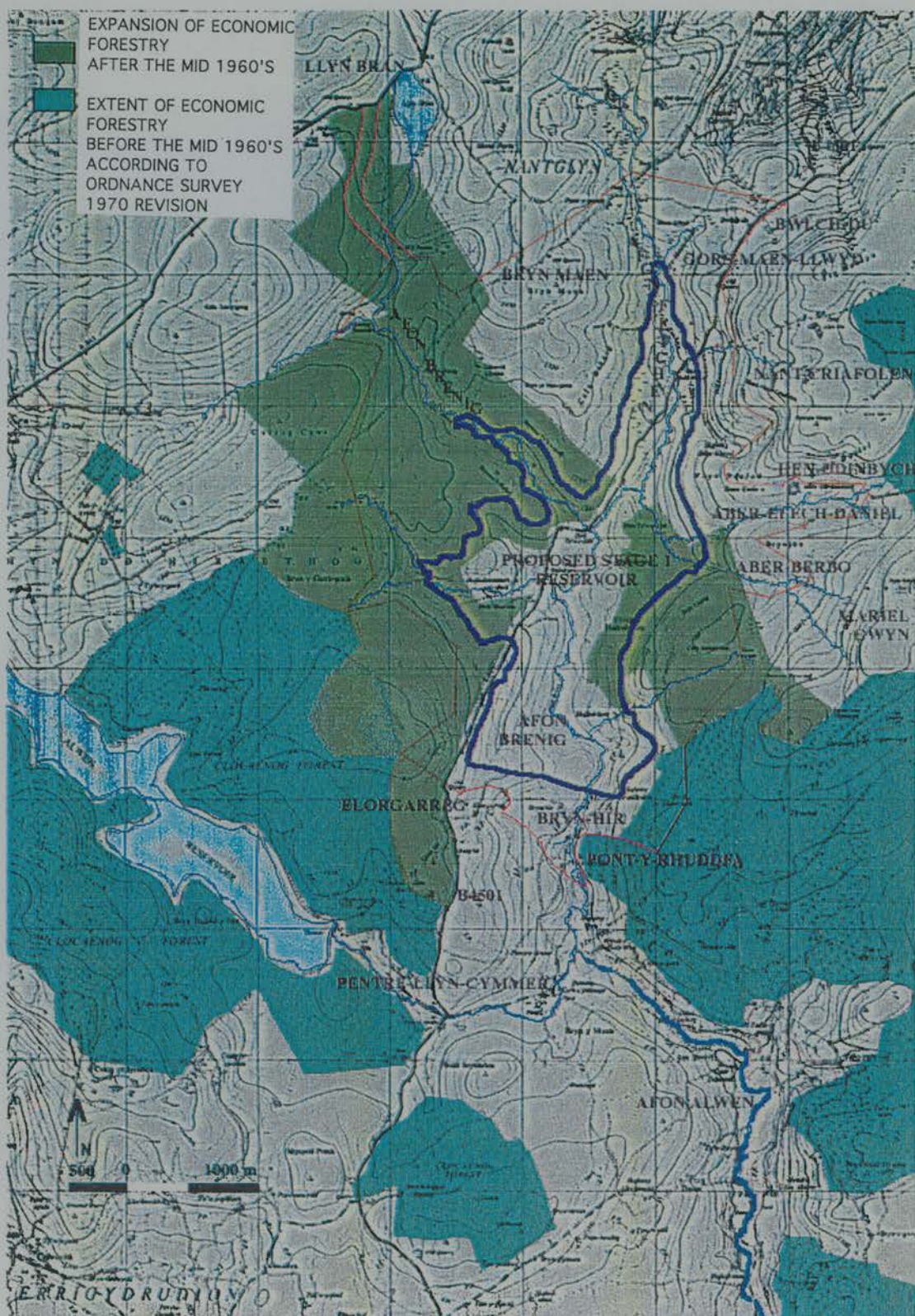
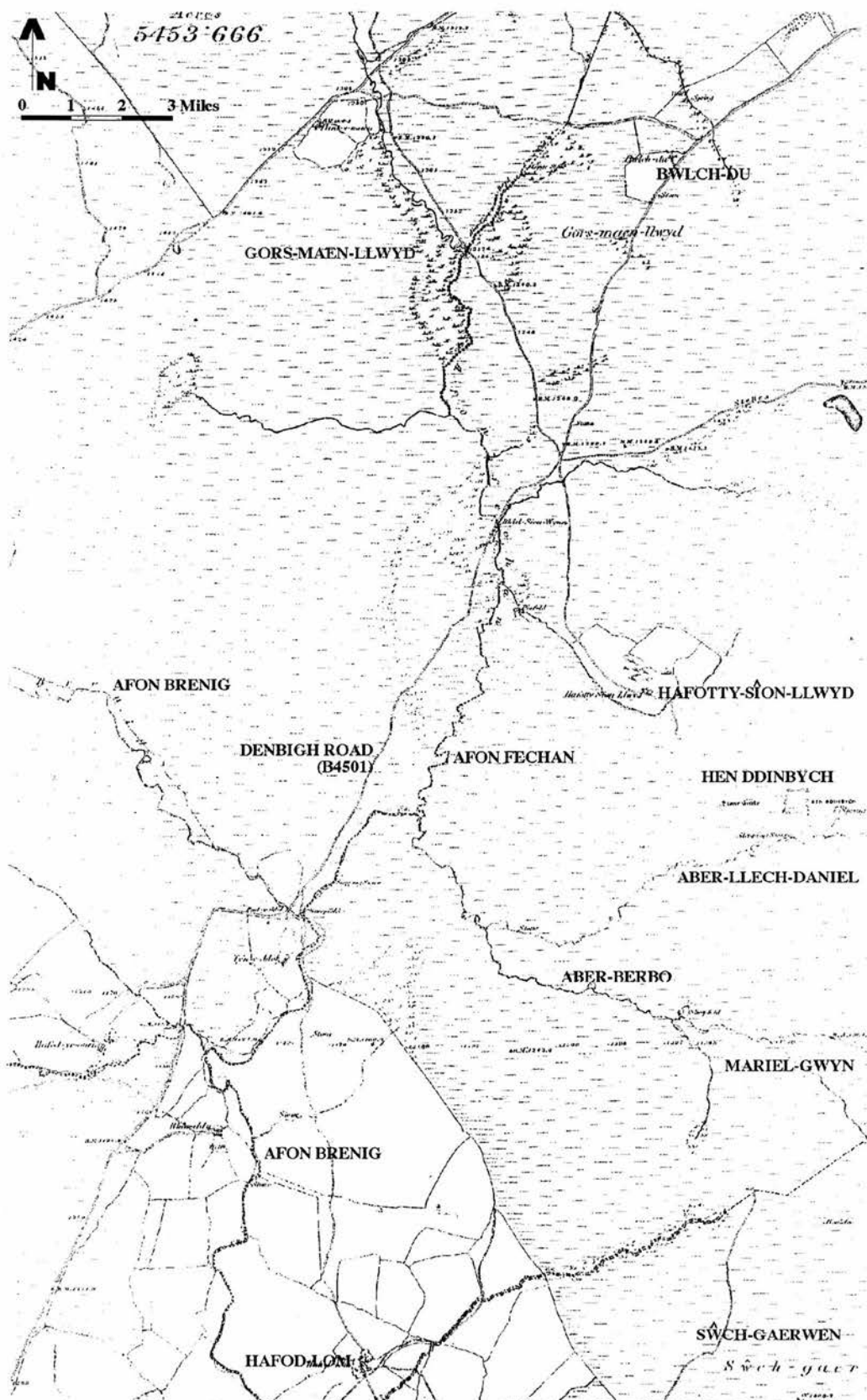
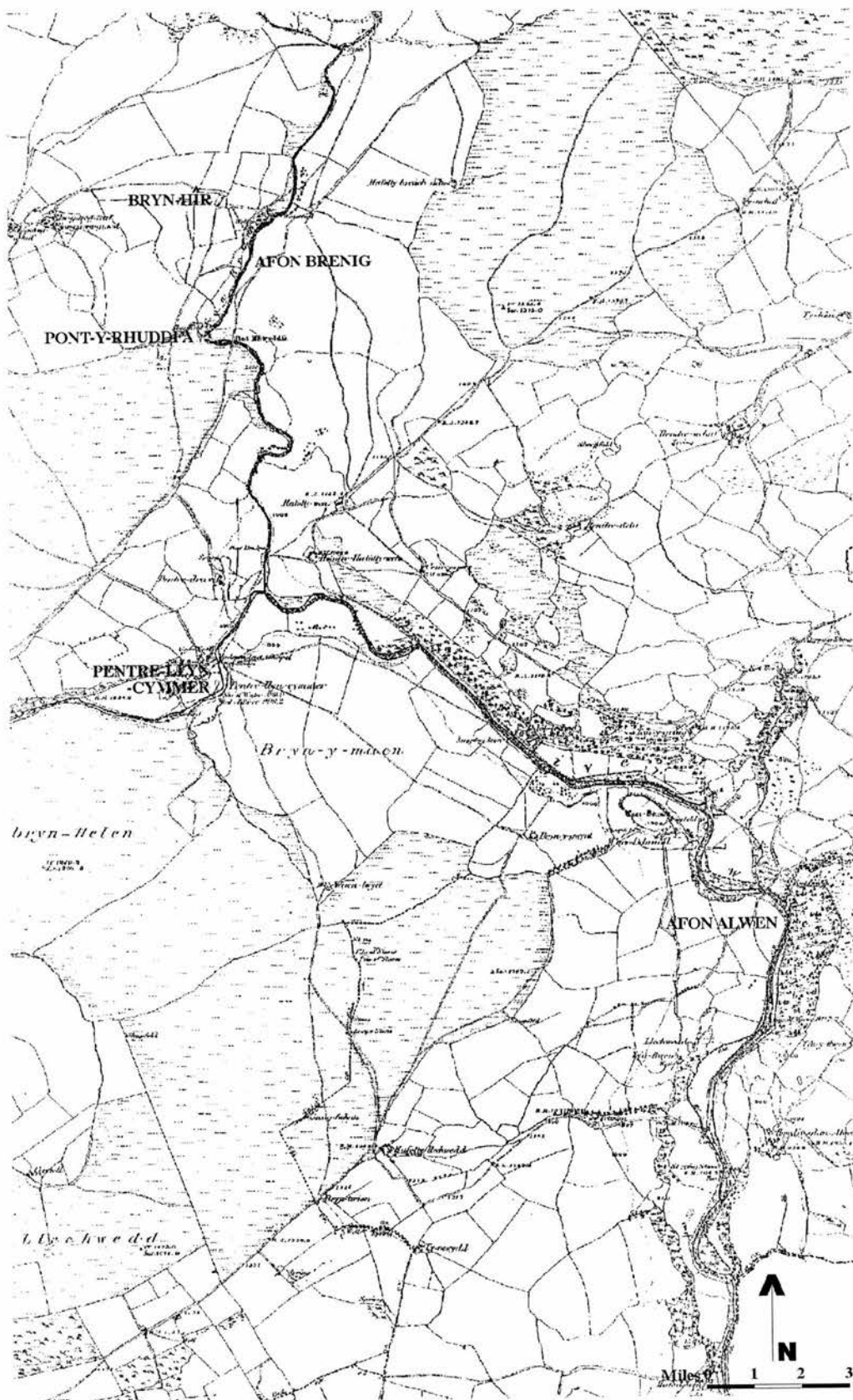


Fig.3.3A: Local Landscape Setting of the Proposed Brenig Reservoir Site Before 1972. (Based on Ordnance Survey of Great Britain, 1: 25,000 Series, 1970 Revision, Sheet 95, and Land Use Survey Information for 1970-1971 from Messrs. Colvin & Moggridge)





**Fig. 3.3B i:** Northern Portion of the Brenig Valley in 1939. (Reproduced from Ordnance Survey of Great Britain, 1 Inch to 1 Mile, 1939, Denbigh Sheet 74)



**Fig. 3.3B ii:** Southern Portion of the Brenig Valley in 1940. (Reproduced from Ordnance Survey of Great Britain, 1 Inch to 1 Mile, 1940, Denbigh Sheet 79)

*some new planting, linking the new scene to the existing context while contributing a new dramatic interest to the landscape thus promoting its potential for recreation"*<sup>1</sup>.

The report however voices the landscape architects' concern over the engineers' proposal to develop the reservoir in two stages: the first to build the dam to 380 m OD level flooding 428 ha and the second stage, envisaged at an unspecified date in the future depending on the changes in demand for water supply, to further raise the dam level to 400 m OD expanding the water surface to 706 ha (fig.3.7 and 3.9). Considering the disadvantages of such an approach, that the damage inflicted on the landscape would be duplicated and many of the solutions provided at the first stage would only be ephemeral, the report stresses the landscape architects' position in favour of a single operation of construction. Nevertheless, the proposals put forward by the landscape architects take the possibility of the second stage into account. Because of this possibility, a 'Limit of Deviation' had been defined and agreed by all the parties concerned, an area within which the river authority had gained control of land and all the proposals were to be applied (fig.3.3A and 3.7).

The report considers that *"from a landscape point of view, regulating rivers is much superior to taking water direct from storage reservoirs, as the health of the river tends to be enhanced by a constant water flow, and the attraction of the Welsh rivers -their romantic lack of constraint- is preserved by regulation"*. The report however points out the danger that *"all rivers may ultimately be regulated in one way or the other unless some are now scheduled for preservation from all interference"*<sup>2</sup>.

The report expresses the landscape architects' view that *"conservation of landscape, wildlife and ecological balance should be an inherent principle in all present day developments, and proper husbandry of national resources requires forethought and careful design"* and emphasises that *"this thought has been embodied in all our proposals"*<sup>3</sup>.

### **3.3 The Landscape Impact of the Proposed Reservoir**

The landscape architects were convinced from their study that the characteristics of the regional landscape would allow integration of the proposed reservoir without much noticeable impact. The Mynydd Hiraethog uplands already contained one natural lake and four reservoirs, and, although Brenig would be

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<sup>1</sup>*Ibid.*

<sup>2</sup>*Ibid.*

<sup>3</sup>*Ibid.*



considerably larger, it could easily be absorbed into the regional setting (fig.3.4). Despite the fact that the water surface would lie high in the landscape with a final top level of 396 m OD and would be extensive in area, the visibility would be limited to quite a local area, contained in the north by open moorland rising up to 500 m and in the south by the extensive forestry existing and proposed. The dam, though a very long and horizontal element in the landscape, would be visible over an even smaller area than the water surface (fig.3.5).

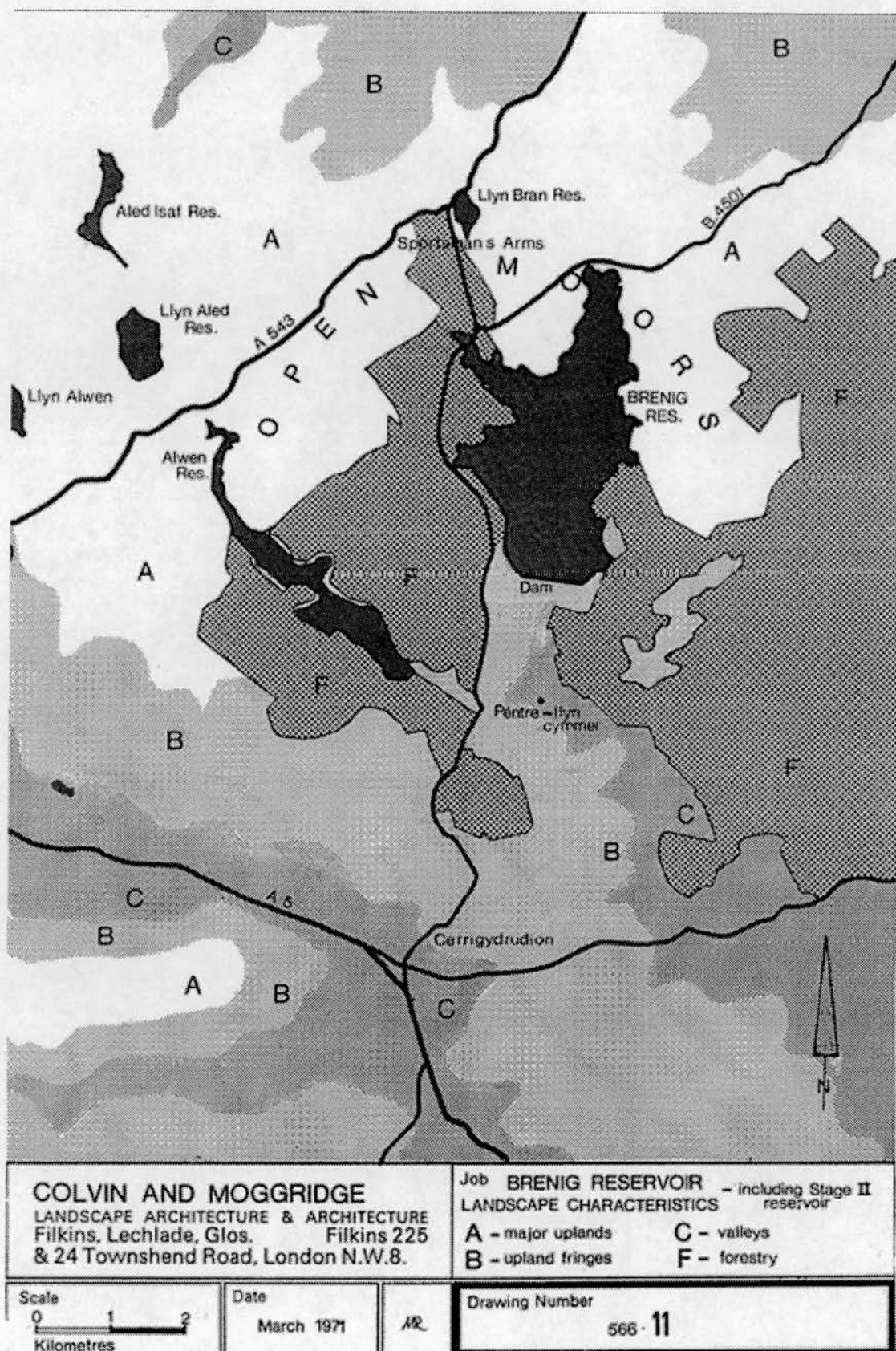
The impact therefore would be localised and felt largely upon the Brenig valley itself, perhaps the most attractive feature of the local landscape. South of the proposed dam the valley would not lose its charm for the landscape proposals would ensure protection and preservation of its assets. North of the dam however most of the valley would be drowned with a considerable share of its beauty, natural assets and layers of archaeological evidence as well as existing land uses.

The physical evidence and the information available at this stage were sufficient for the landscape architects to estimate the aesthetic, ecological and land use value of the area to be drowned and to compare that with the benefits of the resultant landscape. An ecological survey undertaken by the Welsh Nature Conservancy provided areas of special ecological interest within the site<sup>1</sup>.

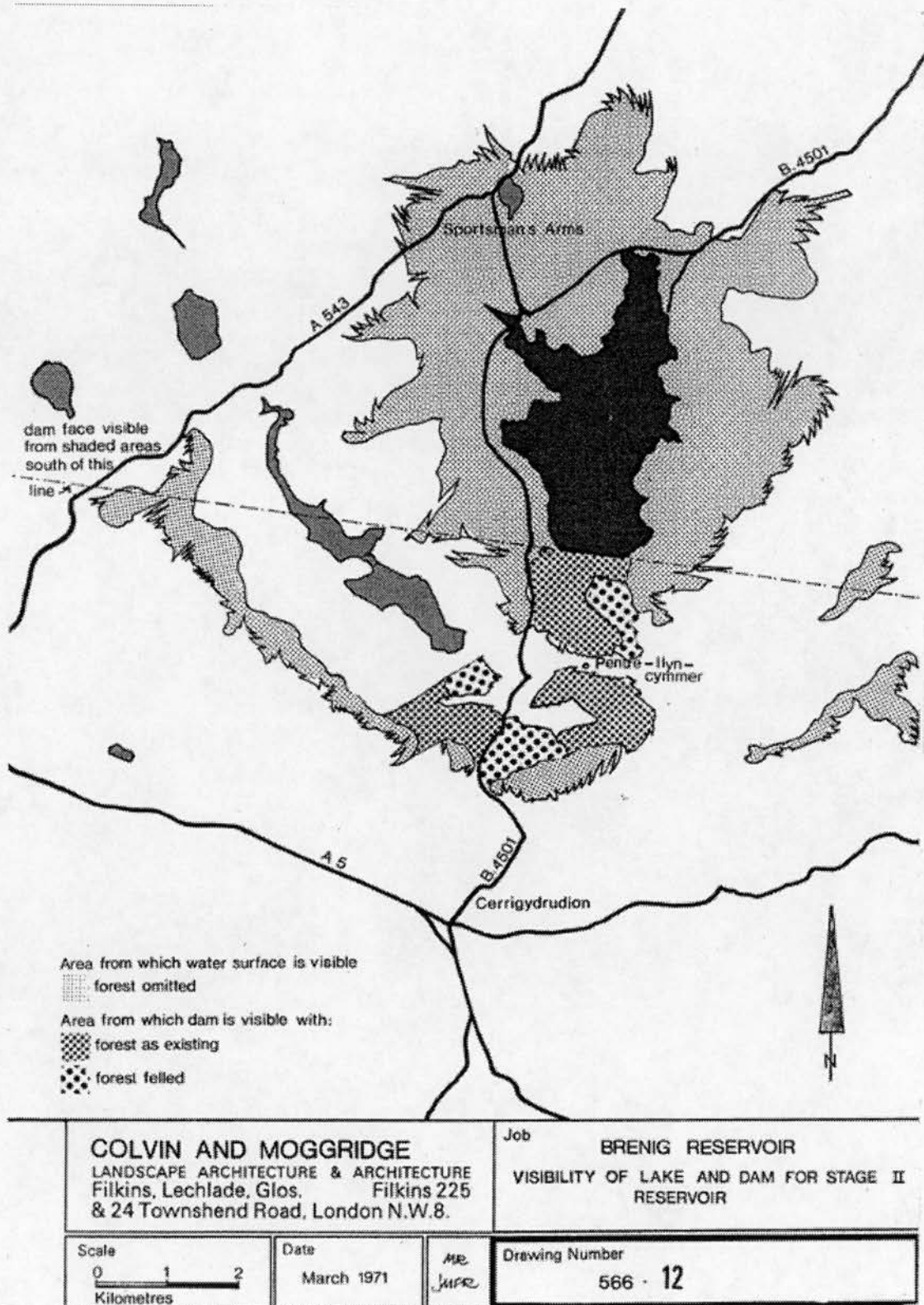
The archaeological value of the landscape however had yet to be established. The history of the landscape derived so far from available records and surface evidence was merely conjectural. Geomorphological evidence suggested that the valley was once occupied by a natural lake with water level at about 450 m, which would have been part of the system of glacial water-bodies that occupied most of the region following the glaciation, as was evident from the ubiquitous glacial deposits (fig.3.6). Ten conspicuously free-standing earthworks, eight of which were scheduled ancient monuments and the remaining two unscheduled but recorded, existed within the area suggesting prehistoric human activity (Table 3.1). Five of these were to be submerged by the stage I and II reservoirs. A thorough archaeological survey of the whole area was required to establish if more monuments were present associated with those already conspicuous, possibly followed by an extensive excavation to unearth hitherto unknown history buried in this landscape. Six deserted farmsteads of later date were present within the limit of deviation. Among them, Hafod-Lom had been recorded in the 'Survey of the Honour of Denbigh' (1334) as a hamlet, which would have been intermittently inhabited for

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<sup>1</sup>Based on *ibid.*

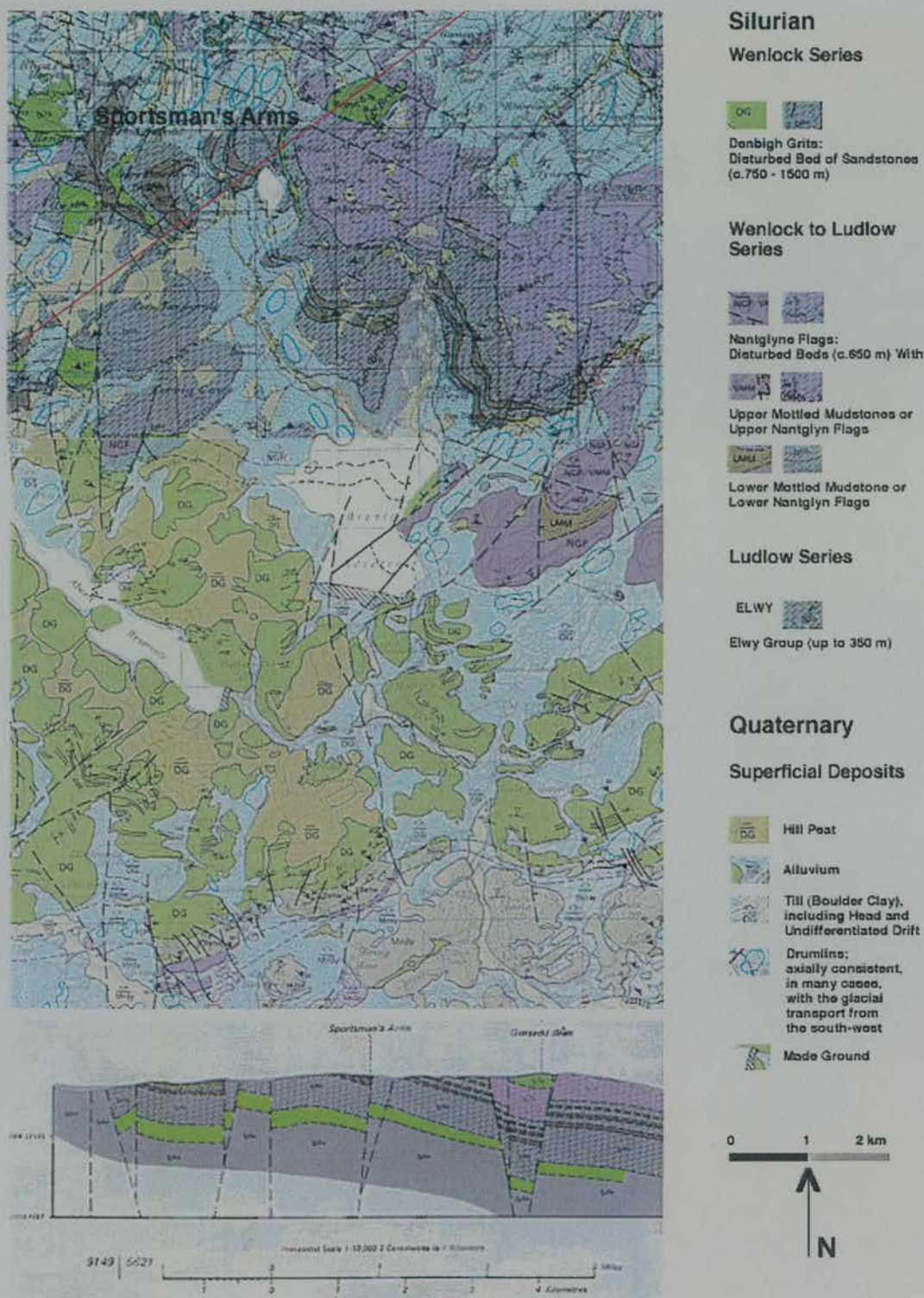


**Fig. 3.4:** Regional Landscape Context of Proposed Brenig Reservoir. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



**Fig. 3.5:** Visual Impact of the Proposed Breng Reservoir on the Regional Landscape. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)





**Fig. 3.6:** Drift Geology of the Locality of Breng Reservoir Site. The glacial, fluvio-glacial and alluvial deposits (shades of pale blue to white) suggest the extent of glacial water-bodies, although the deformation during the Caledonian and, to a lesser extent, Variscan orogenies disturbed and uplifted the beds, bringing some glacial deposits to higher altitudes. It is clear, nevertheless, that the glacial water-body that occupied the area of Breng valley would have been much larger in extent than the present Breng reservoir, and still larger than the proposed stage II reservoir. (Reproduced from Geological Survey of Great Britain, 1:50,000 Series, Sheet 107, Drift, 1973 and Sheet 120, Drift and Solid, 1993)

DEE AND CLWYD RIVER AUTHORITY

Ancient Monuments in the vicinity of Brenig Reservoir

<u>Scheduled:</u>			
<u>Reference letter</u>	<u>Grid Reference</u>	<u>Name</u>	<u>Description</u>
A	SH 9829:5726	Boncyn Arian Tumulus	The mound is about 24 yards in diameter and about $4\frac{1}{2}$ ft. high and has a large hole in the centre.
B	SH 9834:5720	Rhyd Sion Wynn Circular Platform	The large circular platform is about 2 ft. above the surrounding ground and 24 yards in diameter, the edge being slightly higher than the interior and built of earth and stones.
C	SH 9905:5635	Hen Ddinbych Earthwork	This is a roughly square enclosure some 90 x 83 yards enclosed by a low earth and stone bank averaging about 3' high, with a shallow ditch either side. Inside the enclosure are the remains of a stone structure 37 yards long by 7 yards wide. The purpose of the site is uncertain, possibly a medieval moated farm.
D	SH 9879: 5634	Hen Ddinbych )Circular )Platforms )	This stone circle is about 10 yards in diameter, but the stones have been badly robbed.
E	SH 9898:5655	)	This stone circle is 25 yards in diameter, the area inside being covered here and there with a layer of stones.
F	SH 9752:5676	) ) )	This mound has a diameter of 25 yards and is 5 ft. high with a bowl shaped centre depression.
G	SH 9782:5711	) Bryn yr Hen ) Crees Tumuli ) )	This mound is 31 yards in diameter and 7 - 8 feet high, with a bowl shaped depression at the centre.
H	SH 9792:5702	)	This mound has a 24 yard diameter, and is about $4\frac{1}{2}$ feet high, also with a centre depression.
<u>Unscheduled:</u>			
I	SH 9868:5656	—	This saucer-shaped cairn is 13 yards in diameter, 9 in. high, with a depressed middle area.
J	SH 9846:5697	—	This possible cairn is about 25 yards in diameter, 5 feet high, and may be an adapted natural mound.

**Table 3.1:** List of Scheduled and Recorded Ancient Monuments in the Vicinity of Proposed Brenig Reservoir. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



several centuries<sup>1</sup>. The other farmsteads appeared more recent; for instance Hafoty-Sŏn-Llwyd was built in 1881. These farmsteads, with their characteristic stone buildings surrounded by clumps of deciduous trees, were much a part of the valley landscape. Although three of them were to be drowned, the remaining above stage two water level and south of the dam could be preserved and integrated with the proposed landscape as a means of linking the past to the future. A similar effect could be achieved by salvaging the old stones from the structures to be drowned and using them in the new structures of the proposed landscape (fig.3.7).

Despite the rural beauty of the predominantly agricultural landscape of the valley, its aesthetic quality was somewhat marred by the rising terrain and forestry that contained outward views. The opinion of the landscape architects was that *"existing views, pleasant but without any great distinction, could be enhanced and improved by the proposed water surface"*. The visual qualities of the water would introduce *"a dramatic character to the scene and the rim defining contours would, with suitable care, give added character to the land-forms"*<sup>2</sup>.

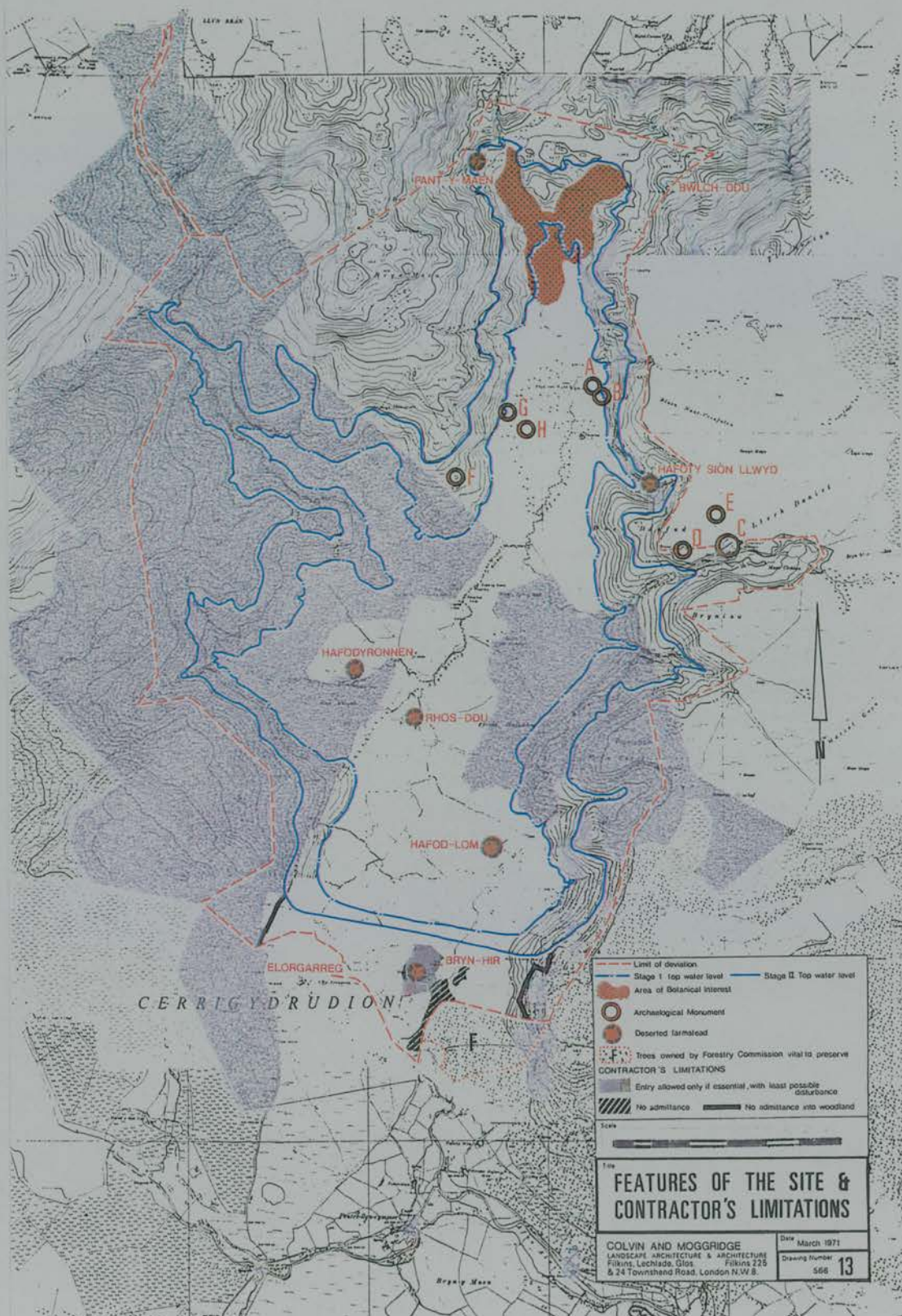
The ecological survey by the Welsh Nature Conservancy identified the northern fringe of the reservoir site as an area of special ecological interest (fig.3.7). A detailed investigation of the area yielded some 130 plant species belonging to moorland, marshland and hill-stream communities, among which were at least 20 species of particular interest. Gors Maen Llwyd within this area proved to be the most interesting wetland yet discovered in Mynydd Hiraethog. The unusually base rich marsh supported a very rare hybrid sedge, not previously recorded elsewhere in the United Kingdom. Although the marsh proved inferior in species composition to comparable base rich sites elsewhere, such as those of Cader Idris (Table 3.2), the regional value of the wetland was undeniable. It was likely that the Welsh Nature Conservancy would designate the wetland as a Site of Special Scientific Interest (SSSI). The Nature Conservancy had informed the landscape architects however that they were not wishing to object to any part of the reservoir proposals, but it was their hope that the river authority would be able to safeguard scientific interests where possible. The marshland of particular interest would not be affected by the stage I reservoir, although stage II would drown it. One of the factors that contributed to the existence of this rare plant community was the relatively low grazing level and human interference. The moorland surrounding the marsh, whilst not being exceptional in quality, was a distinctive upland habitat of limited distribution, in

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<sup>1</sup>*Ibid.*

<sup>2</sup>Quoted from *ibid.*





**Fig. 3.7:** Special Landscape Features of the Proposed Reservoir Site and Limitations on the Engineering Works. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge).

Comparison, on the basis of species, between Gors Maen Llwyd  
(Mynydd Hiraethog) and base rich sites and stream on Cader Idris.  
By P. Benoit

\* indicates that the species is exclusively confined to base rich sites.  
Unmarked species are not confined to base rich sites.

Species		Gors Maen Llwyd	Cader Idris
Agrostis canina		X	X
Anagalis tenella		X	X
Briza media	*		X
Callitriche intermedia		X	X
Carex demissa		X	X
C. dioica	*	X	X
C. echinata		X	X
C. hostiana	*		X
C. panicea		X	X
C. pulicaris		X	X
C. rostrata		X	X
Cirsium palustre		X	X
Crepis paludosa	*		X
Dactylorhiza incarnata	*		X
D. purpurella	*		X
Drosera rotundifolia		X	X
Eleocharis multicaulis			X
E. quinqueflora	*	X	X
Eleogiton fluitans		X	X
Erica tetralix		X	X
Eriophorum angustifolium		X	X
Galium uliginosum	*	X	
Gymnadenia conopsea	*		X
Hypericum elodes			X
Juncus conglomeratus		X	X
J. kochii		X	X
Myosotis secunda		X	X
Myriophyllum alterniflorum		X	X
Narthecium ossifragum		X	X
Oxycoccus palustris		X	X
Parnassia palustris	*		X
Pedicularis palustris		X	X
Pinguicula vulgaris	*	X	X
Potamogeton polygonifolius		X	X
Scutellaria minor			X
Sellaginella selaginoides	*	X	X
Sparganium angustifolium			X
Valeriana dioica	*		X
<b>BRYOPHYTES</b>			
Acrocladium cuspidatum		X	X
A. giganteum	*	X	X
Campylium stellatum	*	X	X
Cratoneuron commutatum	*	X	X
C. filicinum	*		X
Ctenidium molluscum	*	X	X
Drepanocladus revolvens	*	X	X
D. vernicosus	*		X
Leiocolea bantriensis	*		X
Mnium pseudopunctatum		X	X
Scorpidium scorpiodes	*	X	X
Sphagnum contortum	*		X
S. papillosum		X	X
S. plumulosum		X	X
S. rubellum		X	X
S. subsecundum		X	X
S. teres	*	X	X
S. warnstorfianum	*		X

**Table 3.2:** Comparison of Ecological Survey Findings for Wetland on Reservoir Site with a Comparable Site in the Region. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

good condition and far less spoilt by human activity than comparable sites in northern Wales<sup>1</sup>.

The responsibility of the landscape architects therefore, was to ensure protection and preservation of these valuable assets where possible. The county planning policy envisaged that the moorland, though outside the Snowdon National Park, should remain remote and wild as part of the Denbigh moors conservation area<sup>2</sup>. No substantial changes of land use were foreseen in the area and the treatment of the surroundings of the reservoir should be sympathetic with the existing land uses. The landscape architects strongly endorsed the scientific interests in the northern part of the reservoir site and recommended protection from access during construction, no changes in land use and no permanent footpaths nor tracks through the area. It was possible that the head of the new reservoir would attract interesting bird life. The ecological value of the northern end would be further enhanced by the added ornithological interest. The landscape proposals therefore recommended that no water-based recreational activities should be allowed in the northern end of the lake. Together with the moorland and the marshland the northern end of the reservoir could become the focus of naturalist interests. The forthcoming archaeological investigation would most likely add to the value of the adjacent land. The landscape architects recognised the potential of this area to perpetuate the historical character, both archaeological and natural, of the valley landscape.

The southern end of the reservoir site in contrast posed much less restraint to the development proposals as far as the historical value of the valley was concerned. Much of the land at this end was occupied by economic forestry, the remaining land being agricultural. Apart from the three deserted farmsteads, which would be drowned, there was no other physical or recorded evidence suggesting valuable archaeological features. Happily placed south of the site for the dam however were many features that contributed to the beauty and the landscape value of the valley. Bryn-Hîr, the deserted farmstead and the hill immediately north of it, rising up to the crest of the proposed dam, together provided an excellent landscape feature that could be used to break the monotony of the otherwise continuous, horizontal element the dam was going to be. East of this feature, Afon Brenig *"dropped over a water-fall to meander through mature stands of forestry and in a distance about half a kilometre flowed through a little gorge, over a water-fall, past indigenous hazel and rowan woodland and flowery marshland, amongst firs and ferns and finally entered*

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<sup>1</sup>Based on *ibid.*

<sup>2</sup>*Ibid.*



*a meandering deep cut valley, under the fine stone arch of Pont-y-Rhuddfa*"<sup>1</sup>. To conserve these valuable assets the landscape architects recommended that the contractor should be forbidden access to these areas during construction. Such special features accounted for, the southern half of the reservoir site presented potential for developing water-based recreation. The county planning policy envisaged recreational pursuits for the area surrounding the village of Pentre-Llyn-Cymmer, which was considered ideally located as a centre for recreation. This end of the lake should therefore provide suitable facilities for recreation.

These special landscape features of the site dictated the degree of freedom for engineering works and, more importantly, what was appropriate as the future land uses. After such features had been scheduled to be protected during construction as a first priority (fig.3.7), the pattern of localities thus conserved helped the landscape architects to formulate the broad concept for planning the future landscape (fig.3.8). The northern half of the reservoir site would cater for naturalist and archaeological interests, with the landscape assets preserved and existing land uses continued. The southern half, demarcated by a northern limit of forestry expansion, would support forestry and water and forest based recreation. South of the dam, down to Pentre-Llyn-Cymmer, much of the valley land uses would be continued unaffected and the valuable features would be preserved. This pattern, broadly a perpetuation of the existing situation, could bring about the harmonious relationship among the major elements of the future landscape -water, trees and open moors- that was essential for the reservoir to be successfully integrated. The quality of the end product however would depend largely on the detailed consideration and treatment of various land uses around the water's edge.

### **3.4 Land Use Planning**

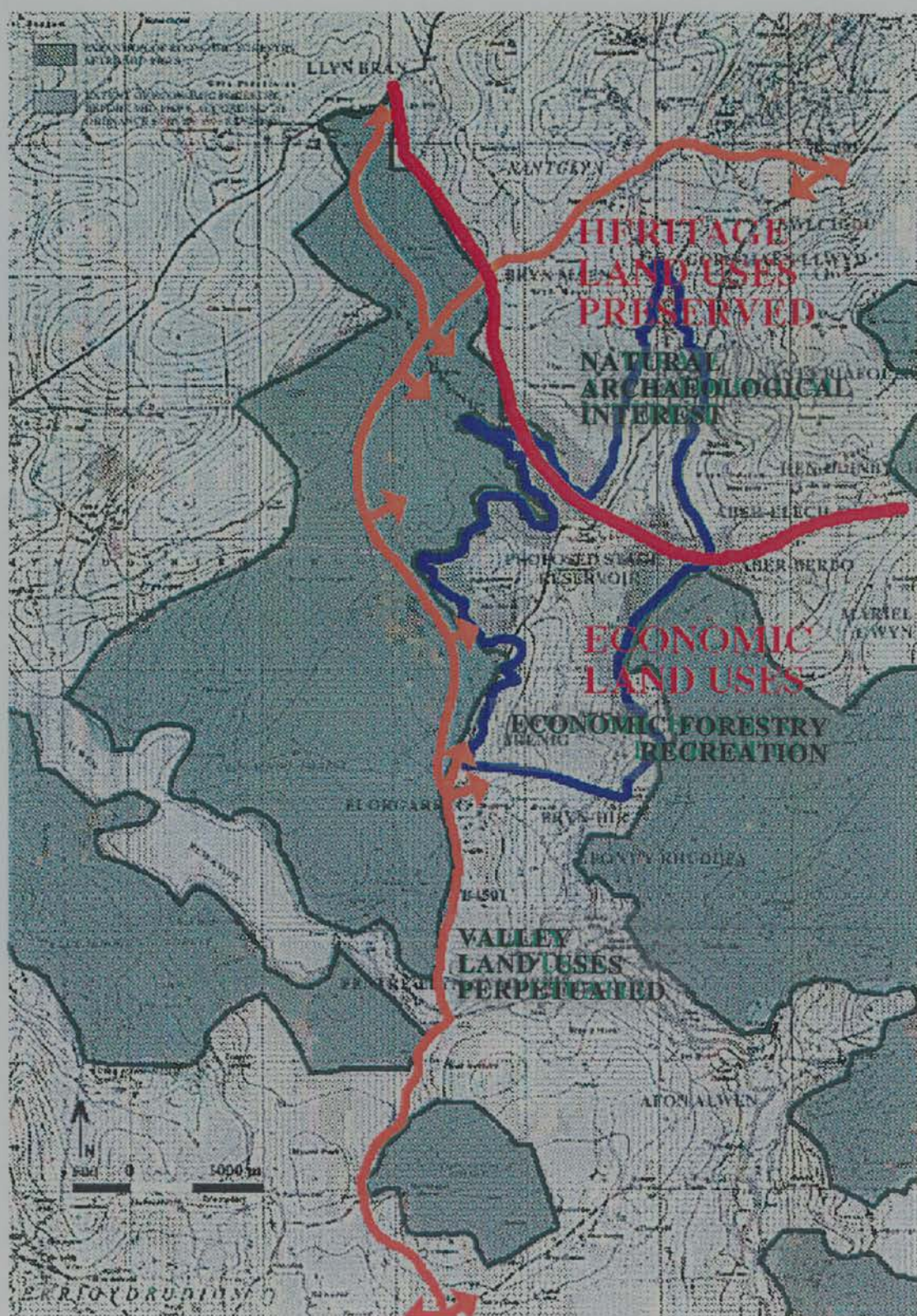
The existing land uses of the reservoir site were limited to forestry, heather moorland, rough grazing and pastures ranging from permanent to cultivable grassland (fig.3.9). Except for Hafod Lom, which was used as a holiday cottage, none of the buildings within the site was occupied. It was remarkable that *"a site for so large a reservoir could be found which imposed such limited hardship on the local population"*<sup>2</sup>. The greatest loss would be to forestry and certain farm holdings (Table 3.3). Types of agricultural land within the limit of deviation amounted to 36% of the total acreage, only 12% of which being permanent pasture and cultivable

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<sup>1</sup>Quoted from *ibid.*

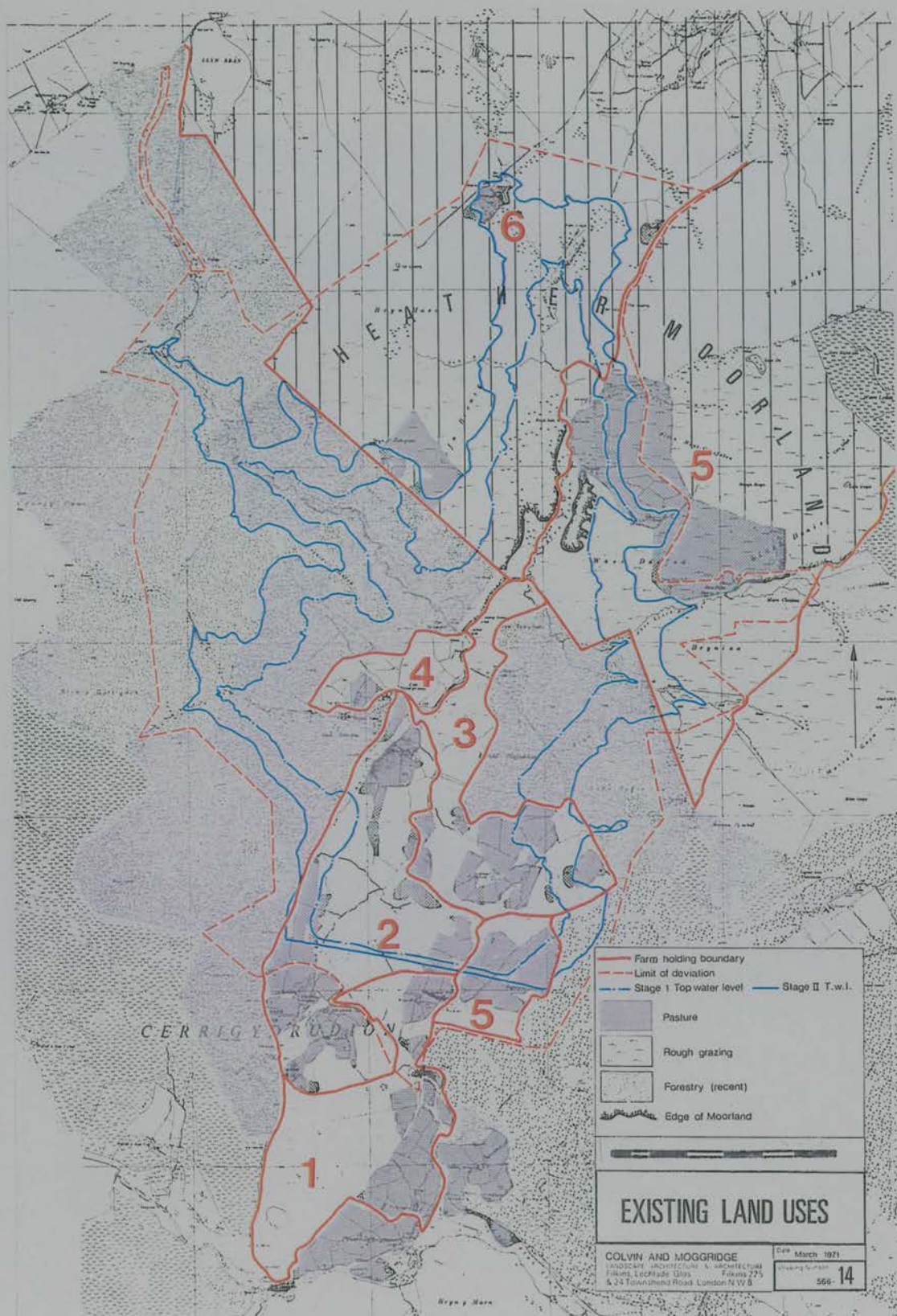
<sup>2</sup>*Ibid.*





**Fig. 3.8:** Broad Concept of the Landscape Plan for the Proposed Reservoir Site. (Based on Ordnance Survey of Great Britain, 1:25,000 Series, Sheet 95, 1970 Revision)





**Fig. 3.9:** Existing Land Uses in the Proposed Brenig Reservoir Site. The Numbers Denominate Farm Holdings; See Table 6.4. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge).



#### **SCHEDULE A**

**Existing Land uses within limits of deviation; -  
(rounded to multiples of 5)**

	<b>Hectares</b>	<b>Acres</b>
Coniferous Forestry	485	1,195
Heather Moorland	295	730
Rough Grazing	305	755
Pasture	150	370
<b>TOTAL</b>	<b>1,235</b>	<b>3,050</b>

#### **SCHEDULE B – STAGE I DAM**

**Proposed Land uses within limits of deviation  
(Water level 380m O.D.) (rounded to multiples of 5)**

	<b>Hectares</b>	<b>Acres</b>
Water Surface at top water level	430	1,050
Deciduous Woodland	20	50
Coniferous Forestry	310	775
Heather Moorland	295	725
Rough Grazing	55	140
Pasture	80	200
Recreation	45	110
<b>TOTAL</b>	<b>1,235</b>	<b>3,050</b>

#### **SCHEDULE C – STAGE II DAM**

**Proposed Land uses within limits of deviation  
(Water level 396m O.D.) (rounded to multiples of 5)**

	<b>Hectares</b>	<b>Acres</b>
Water Surface at top water level	705	1,745
Deciduous Woodland	15	30
Coniferous Forestry	190	470
Heather Moorland	185	455
Rough Grazing	35	85
Pasture	45	115
Recreation	60	150
<b>TOTAL</b>	<b>1,235</b>	<b>3,050</b>

**Table 3.3:** Existing and Proposed Land Uses within the Reservoir Site. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

grassland. This loss, considering the scale of the development proposal, was surprisingly small, and compared with the share of land lost from coniferous forestry and moorland was a good indicator of the direction in which the landscape had been evolving in the recent past.

The whole of the valley land was classified Grade V under the Agricultural Land Classification<sup>1</sup>. The landscape architects sought the advice of the National Farmers' Union in order to evaluate the agricultural land. Despite the difficulties of the terrain, the farmers were making a reasonable living from the land by careful and shrewd management. Cultivable grassland was yielding certain arable crops or silage and winter feeding under intensive cultivation. Pastures were worked on a cycle of heavy grazing followed by arable feeding crops. The land at the southern end of the site supported better quality pastures. The rough grassland and the moorland were equally well managed and used. The land, *"at the same time, was not exploited so as to lower its quality"*<sup>2</sup>.

Although the loss of land to agriculture would be *"remarkably slight for so large a reservoir"*<sup>3</sup>, the impact upon a few farm holdings would be quite high and devastating in some cases (Table 3.4). Hafod Lom for example would be completely submerged and the holding No. 2 would suffer catastrophic losses. The farming practices over the millennia had modelled the valley landscape to its present form and contributed largely to its appreciable value. Therefore, the more land that could be retained and continued in the present agricultural use or restored after the construction and returned to agricultural use, the better the historic character of the landscape would be perpetuated. Most of the affected land south of the dam and a reasonable acreage surrounding the water's edge would be capable of restoration to agriculture, at least equal to their present grade. Some holdings therefore would remain economically viable units (Table 3.4). The landscape architects recommended that agricultural advice on how best to restore the affected land should be obtained and appropriate procedures in this regard should be incorporated into the contract documents. In this way a reasonably sufficient acreage of agricultural land including rough grazing would be retained to continue the traditional character of the valley.

The loss to coniferous forestry in contrast would be more of an economic concern than of landscape. From a landscape point of view, the dominance of the

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<sup>1</sup>Based on *ibid.*

<sup>2</sup>Quoted from *ibid.*

<sup>3</sup>*Ibid.*

# SCHEDULE D – STAGE II DAM

## LOSS TO FARMS

Ref No.	Name	Type of Land	Total Acreage of present farm	Acreage within Limits of Deviation	%age of Farm lost	* Acreage Returnable after completion of Works	* Final %age of Farm lost
<b>VALLEY FRINGE FARMS</b>							
(1)	Pentre draw	Rough grazing Pasture		30		27	
				20	18	13	4
		TOTAL	263	50		40	
(2)	Elorgarreg Uchaf	Rough grazing Pasture		156			
				106	77	9	73
		TOTAL	338	262		9	
(3)	Hafod Lom	Rough grazing Pasture	88	88			
			150	150	100	0	100
		TOTAL	238	238			
(4)	Hafodyronnen	Wet grazing Grass	NOT KNOWN	35			
				55	-	0	-
		TOTAL		90			
(5)	Hafoty Braich-ddu	Rough grazing Pasture	NOT KNOWN	48		5	
+				30		30	
		TOTAL		78	-	35	-
<b>UPLAND FARMS</b>							
(5)	Hafotty Sion	Moorland	NOT KNOWN	240		68	
+	Llwyd	Grass		98		44	
		TOTAL		338		112	
(6)	Pant-y-maen (possibly more than one tenant)	Moorland Grass	NOT KNOWN	687		383	
				57		43	
		TOTAL		744	-	426	-

\* = based on assumptions which may not prove possible in practice.

+ = Two parts of an extensive owner-occupied farm (all other farmers are tenants).

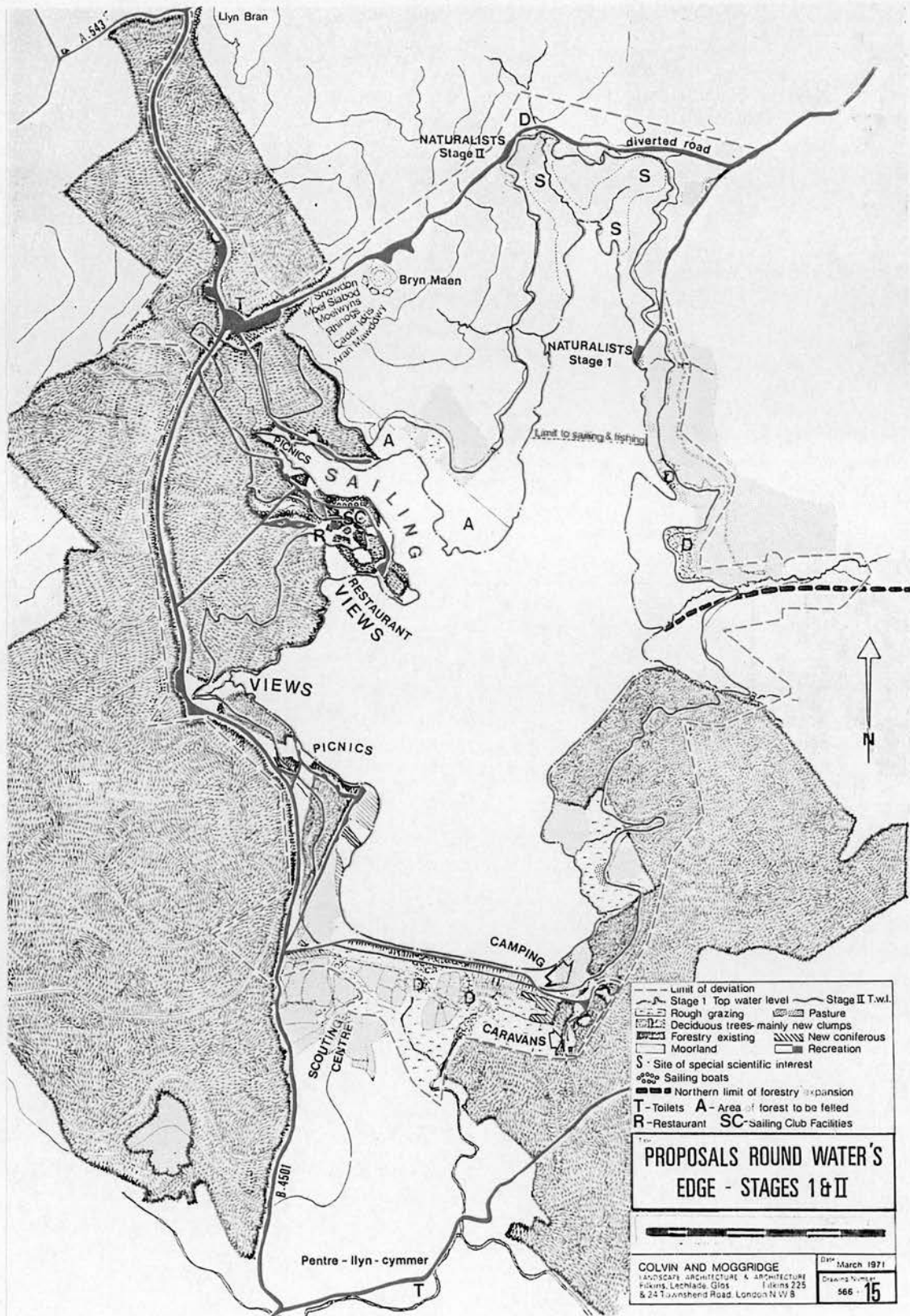
NOTE:— Most of these figures are based on information supplied by the National Farmers Union. They do not exactly correspond with Schedules A—C. We do not feel that this is important as the tables are intended to be indicative rather than precise.

**Table 3.4:** Land Loss to Agricultural Holdings due to Reservoir Proposals. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

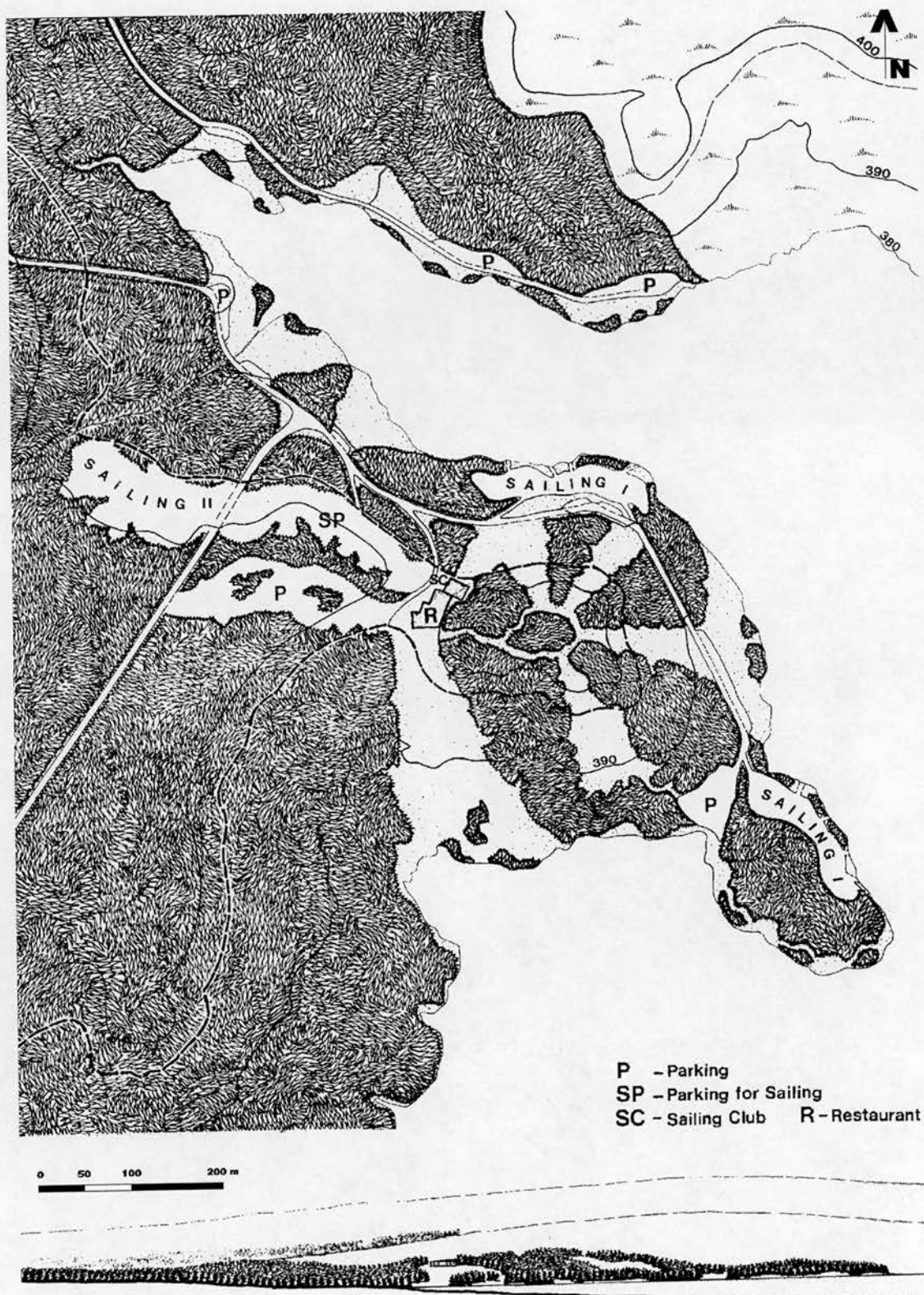


forestry and its present distribution unsympathetic to the land-forms of the valley were more important issues to deal with (fig.3.9). The forestry nonetheless would help marginalise the regional visual impact of the reservoir and would be one essential ingredient of the future landscape in this respect. It was important to break the dominance of the forest edge to the lake by contrasting it with sufficiently extensive areas of other, more open land uses. In the northern part of the site the moorland and other heritage land uses could be protected by imposing a northern limit for forestry expansion. On the north-western shore of the proposed lake, this would be easy to achieve for the moorland here was above the tree line for conifers (460 m), and a slight diminishing of the northern extent of the still immature forest to follow the land-form would be sufficient. On the eastern shore in contrast this limit of forestry had to be imposed artificially further north of the existing forest, as the northern edge of the forest did not lie anywhere near an appropriate natural demarcation of the terrain. However, the landscape architects were not recommending that the forestry should expand northwards to this line, as the existing land use was preferable in the proposed context. South of this proposed limit, subtle changes to the forest edge to contrast it with more open land uses could bring about the appropriate relationship with the water's edge. In places the forest could reach the water's edge in bold sweeps, and on spurs of land reaching right into the water without a fence. This was essential to avoid an unsightly open rim along the shoreline (fig.3.10). On the western shore much interest could be created when clearing areas of forest to allow recreational facilities (fig.3.11).

The landscape architects were aware that achieving this ideal balance might not be straight forward in actual practice as the forest was owned by the Forestry Commission, although the river authority had gained control over the land within the limit of deviation. Since the forest was a commercial crop, the trees would be thinned, felled and replanted in rotation over the years. If the forest under the river authority's control was to be managed in a regime different to that of the adjacent forest owned by the Forestry Commission, an aesthetically deplorable scene might emerge where a mature ring of conifers bound by harsh statutory lines would stand around the shores of the lake. The recommendation of the landscape architects was that the two authorities should negotiate an agreement by which the Forestry Commission continued to manage the forest in the ownership of the other. Reaching such an agreement should not be hindered by the assumption that a different management regime would be required within the river authority's boundaries, since any management operation such as thinning or felling applied to a given parcel of forest should generally be carried right to the water's edge without discrimination.



**Fig. 3.10:** Landscape Proposals for Breng Reservoir Site. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge).



**Fig. 3.11:** Landscape Proposals for Recreational Area on the West Shore of Proposed Lake. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



Yet, there would be sensitive areas of forest, for example strategic stands on shoreline or on spurs reaching into the water or enclosing recreational facilities, that would need to be managed with greater emphasis on amenity than cropping. Clear felling of such stands of timber would be highly damaging to the amenities of the lake and would have a long lasting effect on its aesthetic quality. It was essential to recommend that such stands should be cropped by selective felling and under-planted for perpetual regeneration. The shape and the form of such stands would have a significant contribution to the quality of the landscape that the landscape architects were aiming to achieve and therefore needed detailed consideration in the final design to ensure that *"they enhanced the relationship between the water surface and the topography"*<sup>1</sup>. Once clearly defined, these strategic stands would obviously need a management regime different to that applied elsewhere in the forest. It had to be ensured here that the change in the type of management should not occur along rigid statutory lines where ownership changed, but should follow those defined by the landscape plan.

The landscape architects had defined other areas of coniferous forest as visually important as the stands discussed above, but located outside the limit of deviation and therefore owned by the Forestry Commission. The mature forest east of Pont-y-Rhuddfa, on steep ground rising from the valley immediately south of the dam for example would almost completely mask the dam from Pentre-Llyn-Cymmer (fig.3.7: area marked F). It was vital that this stand would never be clear felled but kept perpetually by selective felling and under-planting.

It was clear therefore that the quality of the future landscape would depend to a considerable extent on the forestry management strategy the two authorities would agree on following their negotiations. The situation would have been entirely different had the river authority had control over an extent of land larger than what was available within the limit of deviation, ideally an area defined as sufficient by the landscape study. Using the ideal case of Ruhr River Authority in Germany in comparison with Brenig, the landscape architects stressed this point in their report and admitted that they *"had to go somewhat beyond their terms of reference"*<sup>2</sup> in order to achieve the best results within the limitations imposed by ownership. Considering that the Forestry Commission stood alone to lose the biggest share of land use, the negotiations had to be based on compromise and consensus. Within their brief, the landscape architects could only stress the importance of their

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<sup>1</sup>*Ibid.*

<sup>2</sup>*Ibid.*

recommendations and mediate in the negotiations aiming to achieve the best workable solution. In compensating for the loss to forestry the landscape architects suggested that "*afforestation over Marial Gwyn up to Aber Llech Daniel on the east shore would create an acceptable landscape*"<sup>1</sup> (fig.3.3 A and 3.10). However, afforestation on to Llech Daniel, particularly over the skyline beyond the northern limit recommended by the landscape plan, would, in their opinion, be highly damaging to the setting of the lake. In addition, a few stands of coniferous forestry along the shoreline were recommended by the landscape plan (fig.3.10).

Since the existing coniferous forest would provide ample tree cover round the water's edge, the landscape plan recommended only a few new clumps of deciduous trees where appropriate, to replace those which would be drowned (fig.3.10). A larger quantity of tree planting however would be required on the face of the dam and below.

In the case of the moorland, the landscape proposals recommended a minimum extent that was essential to be retained in this use to perpetuate the heritage value of the landscape and to contrast the forested shoreline further south with the bleak openness of the moor in a strong balance (fig.3.10). The heather should be carried right down to the shoreline without fencing so as not to interrupt the flow of space and texture. Since a considerable area of moorland was within the limit of deviation, it was recommended that this extent of the moorland should be managed by the river authority or under their scrutiny. The proposals recommended in detail that the moorland should be burned on a ten year cycle, in a rough manner so that small areas would escape burning. Each year the oldest one tenth of the moor should be burnt. Sheep grazing could be allowed at about one per acre, if burning was not regularly carried out. The Nature Conservancy should be consulted regularly to ensure that the quality of the moor would be maintained. In the case of roads within the moorland, it was vital to maintain their rural quality. This was to be achieved by irregular road verges without kerbs or fences. After completion of road works the scars were to be healed mainly by natural regeneration of the moor. Where this would not be appropriate, turving with turves from the adjacent moor, intermixed with seeds from the local grasses should be applied. It was recommended that a specialist seed firm should be contracted to grow on seeds collected from the site in consultation with the Nature Conservancy at the earliest date.

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<sup>1</sup> *Ibid.*

One other important change the proposals brought about, that needed careful landscape consideration, was the diversion of the road B4501. The existing road crossed the reservoir site diagonally from south-west to north-east (fig.3.3A). Diversion in an easterly route where it would cross Brenig valley above Pentre-Llyn-Cymmer would be highly obtrusive. The more favourable proposal was to divert it round the west side of the lake and link it with a spur to the A543 near Llyn Bran (fig.3.10). In this route, the road would be more readily absorbed by the forested landscape and, in turn, would facilitate the proposed recreational areas on the west shore, with the added advantage that it would increase the recreation potential by bringing visitors to Pentre-Llyn-Cymmer from the A543 along a shore able to absorb large numbers of cars as the forest matured. In this route, the stretch of road from the A5 at Cerig-y-Drudion, including the spur to the A543, could be widened to a two-way road without much impact, to initially support the construction traffic and later to absorb both tourists and long distance traffic. The stretch of new B4501 beyond the spur to the A543 would however cross the moorland just north of the lake, a terrain that would not be able to accept a wide, heavily used road. The widening of the road from the A5 would most likely result in a thrust of extra traffic onto this stretch towards Denbigh, both tourist and long distance from the south via Bala or Corwen. Since a wide two-way road for this stretch was highly unacceptable in a landscape point of view, the landscape architects recommended building a low grade single track across the moorland between Afon Brenig and Bwlch-Du, possibly following exactly the old Denbigh road. This would effectively guide long distance traffic onto the A543 on the high grade route, providing a useful north south link, while local traffic would still have suitable access to the northern section of the B4501. The road across the moor could more easily be integrated if bends were sharper and the gradients greater, as the natural terrain suggested. *"This would actually be a case where the correct solution would be to deliberately build a slightly inconvenient road"*<sup>1</sup>.

Similarly, there were statutory footpaths and tracks that would need diversion within the limit of deviation. The landscape recommendation was that the new routes *"should be laid out in detail by walking and pegging on site, so that irregularities dictated by features on the ground could be incorporated into the tracks"*<sup>2</sup>. This would perpetuate the character of the existing footpaths and prevent them from following *"incongruous survey lines"*<sup>3</sup>. Generally the same principle should be

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<sup>1</sup> *Ibid.*

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*



applied where new access routes for farming and forestry would be required. A gated and fenced track all round the reservoir, if sensitively routed not to follow the water's edge constantly, could provide such access where required.

Apart from the reservoir itself, the waterside and water-based recreation generated by the reservoir would add a totally new land use to the landscape. Aesthetic qualities of water bodies attract the public. Brenig, being such a large reservoir, would inevitably attract numbers sufficient to make recreation an economically viable land use. Landscape proposals at this stage roughly estimated 45 to 60 ha of land surface allocated for suitable recreational facilities (Table 3.3, fig.3.10). This figure obviously excluded any evaluation of the recreational potential of water surface of the reservoir. If area based estimations of the recreational and water-catchment potentials of the water surface were to be added to this figure, it could be shown that the loss to existing economic land uses had been counterbalanced. In a landscape point of view nevertheless, the success of the scheme would depend much on the balance achieved between the economic land uses and the heritage land uses. Siting and the detailing of the appropriate recreational facilities were based on this concept. In principle, *"the noisier and more crowded activities would be in the south and south-west while every effort would be made to preserve the solitude of the moor"*<sup>1</sup> with its archaeological and ecological assets.

There would be some limitations on the recreational activities suitable due to the fact that the reservoir would be high and exposed in the landscape. Club-based activities such as sailing and surfing would be possible, though the most popular and accessible activity would be car-based picnics at view points. The wooded south-western shore provided excellent opportunities to accommodate all such activities. Being easily accessible from the proposed new road, access routes parking and associated facilities could be provided for a large number of visitors, well contained and concealed within the woodland. As the forest matured, it would be able to absorb even more such facilities to meet the demand. These could be sited in lakeside forest clearings at points from where water's edge would be easily accessible and dramatic views of the reservoir and its environs would be available. The clearings should be designed in such a way that the cars, crowds and other facilities would be well concealed, the visitors well sheltered and yet, there would be sufficient light, sunshine and wide enough outward views. The landscape proposals recommended providing such facilities all along the wooded western shore where ideal locations for

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<sup>1</sup>*Ibid.*

even larger facilities such as boat houses, sailing clubs, restaurants and a visitor centre could be found (fig.3.10 and 3.11). These areas would be located well away from the northern nature conservation area of the lake. In addition, the landscape architects opposed power-boating and recommended forbidding such activities other than sailing or wind surfing. Similarly, fishing should be allowed only along the western shore.

Along the diverted road beyond the wooded shores, there would be beauty spots where parking lay-bys should be provided. Extreme care was to be given, especially within the moorland stretch, when siting and detailing such facilities. Such a spot was where the new B4501 would cross the moorland over Bryn Maen, where a splendid view of Snowdonia would unfold with the reservoir filling the easterly foreground (fig.3.10). *"In such a case the immediate foreground should be as splendid as the view"*<sup>1</sup>. The lay-bys were to be designed in such a way that the vehicles would be concealed behind skylines and footpaths provided for the ascent to the spot. The lay-bys and the footpaths should be finished in a rough manner without facilities, to create an atmosphere of accidental character.

The landscape proposals recommended footpaths round the whole lake for hiking or pony-trekking, not continuously following the shoreline but laid out through various terrains. These were to range from woodland bridle-ways to sparingly marked tracks across open moorland or rough grassland, continuous with the existing such routes beyond the limit of deviation. No such facilities however would be provided within the conservation area in the northern end. Short walks could be arranged in the valley south of the dam, and pony-trekking should be centred on Pentre-Llyn-Cymmer. Parking and plenty of other facilities could be provided at the village to boost its tourist trade. Parking would be needed for moorland walks, in addition to those provided in the village and on the western shore. These could be placed at the moorland stub end of the B4501. It was likely that camping and caravanning would be required around Pentre-Llyn-Cymmer. The landscape proposals recommended a suitable site within the mature forest on the eastern shore with access via the top of the dam (fig.3.10). Well sheltered and screened by the forest, the facilities could be embedded in carefully designed forest glades (fig.3.13). Initially, the site could be used as a temporary residential area during the construction of the reservoir.

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<sup>1</sup>*Ibid.*

### 3.5 The Detailed Design Treatment of the Reservoir and its Facilities

The detailed design of these facilities needed most careful attention. The buildings, kiosks, toilets, signposts and the surfacing of car parks and tracks were not to be incongruous with the character of the rural landscape.

The way in which the shoreline would be finished would have a significant effect on the visual quality of the reservoir. Every effort had been made in detailing to avoid a continuous open rim or any such repetitive feature. Landscape architects' observations and experience of other reservoirs however showed that the drawdown in this regard could cause problems difficult to resolve. In certain periods of drought, the water would recede from the top water level as it would feed the river below. The reservoir would take a period of years to refill, and would rarely be completely full. This would expose a continuous rim of lake bed all along the shore. In the landscape architects' opinion, periods of low water were the principal disadvantage of reservoirs. In the case of Brenig, its high siting would further aggravate the problem as the exposed rim would tend to look wider set against the scale of lower surrounding hills. The heavy afforestation of these hills and the broken contour which would form the rim would possibly help alleviate the problem. Also, the changes of texture of lake bed along the exposed rim would break its monotony: for example, the exposed marshy land in the north would have a peaty character in contrast to the southern shores which would mostly be rocky and sandy. The exposed marshy beds would re-vegetate quickly and meanwhile attract birds. Existing peat and alluvium would always be exposed as a muddy margin, particularly in inlets along stream beds. Here again, plants might establish more readily. A predominant length of the lake shore would however be stony when exposed, soils having been washed away by the wave action. Herbaceous plants would not be able to establish in such a situation, and even if they did, their cover would be insufficient for the scale of the landscape.

The landscape architects referred to research carried out by Department of Botany at Liverpool University on the drawdown<sup>1</sup>. The research had shown that flood tolerant species including trees like alder and willow could be planted to

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<sup>1</sup>Gill C. J. *The Flooding Tolerance of Woody Species - A Review*, **Forestry Abstracts**, vol.4, No.31, 1970, p.671; and Bradshaw A. D. and Gill C. J. *Some Aspects of the Colonisation of Upland Reservoir Margins*, **Journal of the Institute of Water Engineers**, No.25, 1971, pp.165-173; also see Bradshaw A. D. and Gill C. J. *The Landscaping of Reservoir Margins* in Clouston B. (Ed.) **Landscape Design with Plants**, William Heinemann Ltd., 1974, London, pp.198-208.



overcome these problems. They could withstand wind and wave action and would survive prolonged periods of partial inundation provided that they would not be flooded at least 60% of their growing season. Alder and willow had proved particularly outstanding in this respect as well as in their ability to survive low pH. and low nutrient conditions of upland reservoir margins. The landscape proposals recommended that if such tree growth could be established in suitable areas of the exposed rim, experimenting on this recent research, it would greatly improve the quality of the drawdown reservoir.

The drawdown, apart from its visual impact, would cause some practical limitations on the land uses around the water's edge. The effect on recreation would be minimal for the visitors could walk over the stony beach to the water. Drawdown had been taken into consideration when locating recreational facilities in the landscape plan. The sailing club, for example, was to be sited where the shore would be steep enough to provide sufficient depth even during extreme drawdown. In the case of stock rearing on the other hand, the problem would be difficult to solve. For visual reasons of great importance, the landscape proposals had recommended no lake-edge fencing along forestry or moorland. This might result in stock moving from one enclosure to the other during drawdown over the exposed beach. In principle, fields of pasture would be fenced to contain stock. These fence-lines would not be visually intrusive for the fields were irregular in length and in distribution along the shore (fig.3.10). In the cases of moorland, rough grassland and forestry however, greater care would be needed in detailing the fencing. The landscape proposals suggested that boundaries between moorland and forestry could meet at top water level on the line of a stream, Afon Brenig on the west and Aber Llech Daniel or Aber Berbo on the east (fig.3.3A and 3.3Bi). The streams could be enlarged, if necessary, below the top water level to contain stock movement. Similar natural boundaries within the moorland and rough grassland could be used where required, although further discussions with the owners would reveal the need for additional lake-edge fencing.

The visually most intrusive structure to be dealt with was the dam itself, which would be exceptionally long and high in the local landscape. The detailed treatment of the dam was to play an important part in the landscape proposals, as an inappropriate structure dominating the valley landscape would disrupt the harmony and balance the landscape architects were trying to achieve between the old and the new. The landscape architects were opposed to considering a concrete structure, for such a construction would be far too dominant. A rock-filled structure, on the other

hand, would offer the best opportunities for successfully relating the dam to the landscape, and perhaps simulating a glacial spillway reminiscent of the geomorphological history of the valley. At stage I, the dam would be smaller in scale making it easier to integrate. However, the probability of a second stage would influence the type of treatment to be recommended at stage I (Fig.3.12). The stage II dam would form a mass about a mile long, rising up towards the skyline, and almost equal in scale to the hills around it. At such a scale, the dam would form an angular ridge foreign in shape to the local topography. The landscape treatments proposed for the dam were aimed at alleviating the impact (Fig.3.13 and 3.14). It was fortunate that, despite its bulk, the stage II dam would be visible over a very limited area owing to the enfolding hills and forested skylines to its south (see Fig.3.5).

The spillway tower would be visible near the dam above top water level. It was advantageous that the tower would rise from water without a connecting bridge to the shore. Its shape should be carefully designed to form a delicate silhouette. Using a neutral colour to finish it was to be essential.

The face of the stage I dam would be divided into two unequal parts by the hill above Bryn-Hîr which would rise almost to the crest of the dam. The short easterly part would rise over 40 m from the stream, wedged into the little rocky canyon through which the stream ran. A rocky treatment with a steep front face was recommended here. The larger westerly part rising less than 30 m from soft curves of the hillside would need a softer, moulded treatment, if possible with flatter gradients to the westerly end and base curved into the land both upstream and downstream. A block of trees on the dam face above Bryn-Hîr would emphasise this division. This contrast of two types of treatment, each sympathetic with the natural topography south of the dam would be sufficient to absorb the stage I dam into the landscape (fig.3.12). If this stage of the dam were to be the final stage, the landscape architects would have recommended placing all surplus spoil against the front of the dam, rising to the top north of Bryn-Hîr and sweeping away westwards against the face. This would have completed the textural apportionment of the dam into two units and relieved the flatness of the dam crest. The spoil however, would be more useful in the probable second stage dam as toe weight. At first stage therefore, the southern tip of the toe weight could be moulded, and then surfaced and planted to be a satisfactory element in the landscape (fig.3.14). In the second stage it would help mask the main working area and, with its then mature vegetation, would help ease the larger dam into the landscape more rapidly.

More extensive treatment would be needed on the face of the second stage dam. *"The landscape below the dam" was "fragmented into land-forms of a certain size, becoming smaller in scale at lower altitudes. Onto these land-forms, units of land use" had "been superimposed, tending to be extensive at higher levels, for instance blocks of forest in contrast with smaller walled fields in the valleys"*<sup>1</sup>. Because of this character, moulding the stage II dam into the topography as a single element would not be possible, for its great bulk would then dominate the fragmented land-forms below it. The landscape architects studied the possibility of treating the ends of the dam to make it appear a structure separate from the land below it and concluded that this would give rise to insuperable structural problems. Their recommendation therefore was that the face of the dam should be fragmented into distinct elements similar in scale to the adjacent land-forms, with a superimposed surface of various land uses particularly along the base of the western length. The need for a toe weight to stabilise the structure would make this policy feasible (fig.3.13 and 3.14). Their proposals at this stage however were intended to be only indicative since the structural evolution of the dam and its landscape treatment should advance together.

The aim of their proposals for the land uses on the dam face was to enrich its surface to a quality equivalent to that of the landscape below it. In places the structure of the dam would be exposed in screes of fine rocks with occasional, well placed tumbles of large rocks. Lying against this would be the masses of toe weights, moulded gently into the land below. Some of these soil surfaces could then be restored to agriculture where feasible, including a large area of pasture over the toe weight and spoil heap between Elorgarreg and Bryn-Hîr. In other positions vegetation of an indigenous type should be established. Here grasses and flora suitable for such a position should be sown, seeking advice and involvement of the Nature Conservancy in order to avoid applying agricultural seed mixtures appropriate elsewhere. A large quantity of tree planting was recommended on the face of the dam and the adjacent land (fig.3.13). These were to be trees and shrubs of indigenous and deciduous species. At the ends of the dam the outlines of the coniferous forest were to be filled out with new irregular blocks of broad-leaf planting to soften the junction between the dam and the tree line. The most important planting proposed would be on the face of the dam and on west side of the spoil tip. Among them, the block of woodland carried right up to the dam crest above Bryn-Hîr would contribute largely to enriching the dam face (fig.3.14). It would also help

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<sup>1</sup>Quoted from the report by the landscape architects: Brenig Reservoir Scheme: Landscape Report, Colvin & Moggridge, May 1971.



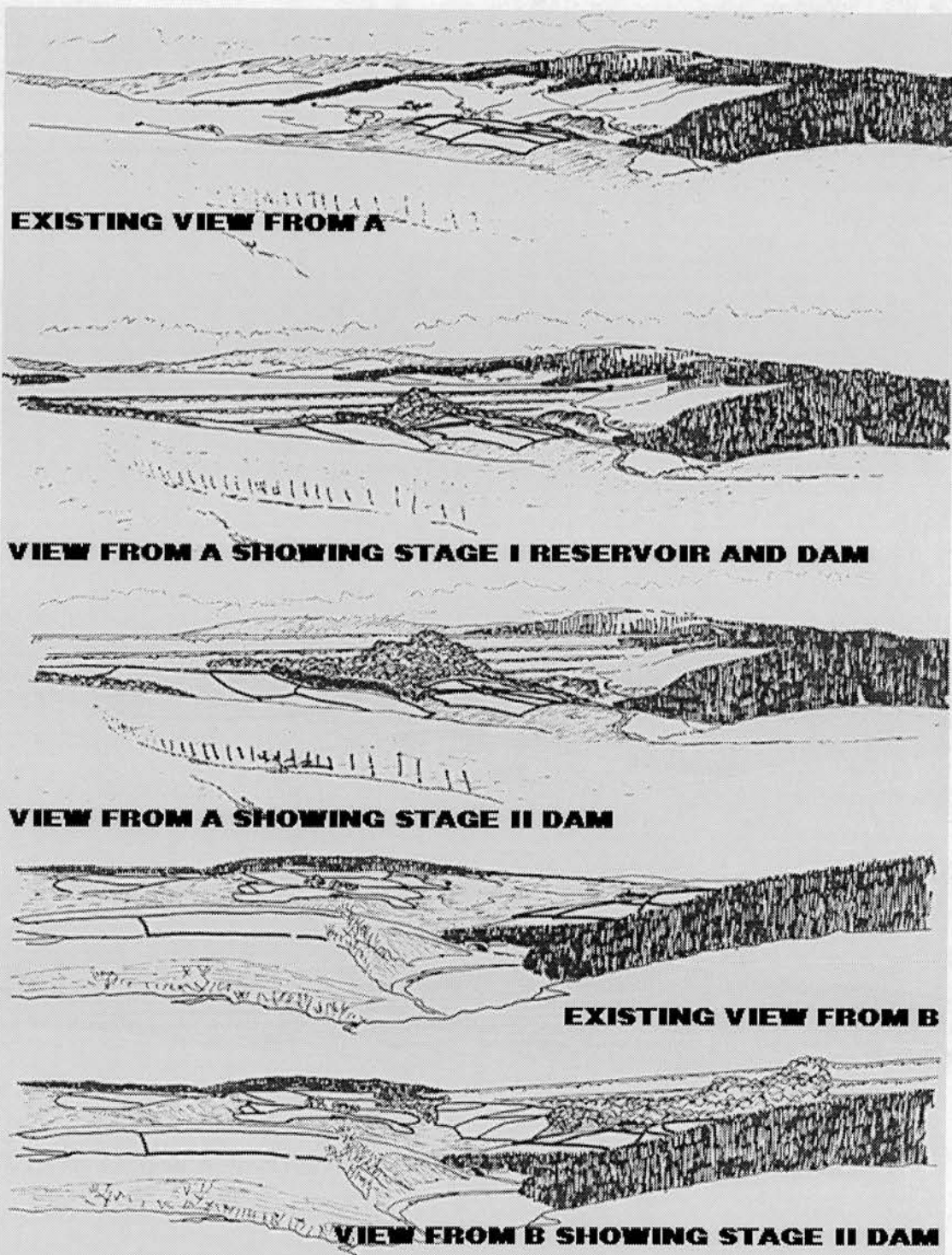
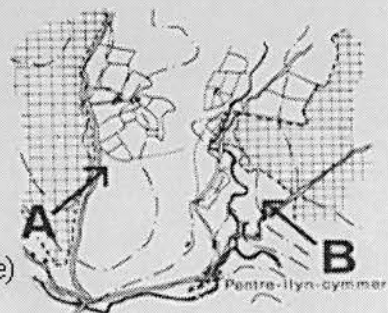


Fig. 3.12

Perspective Sketches Illustrating Landscape Treatment of the Proposed Brenig Dam. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



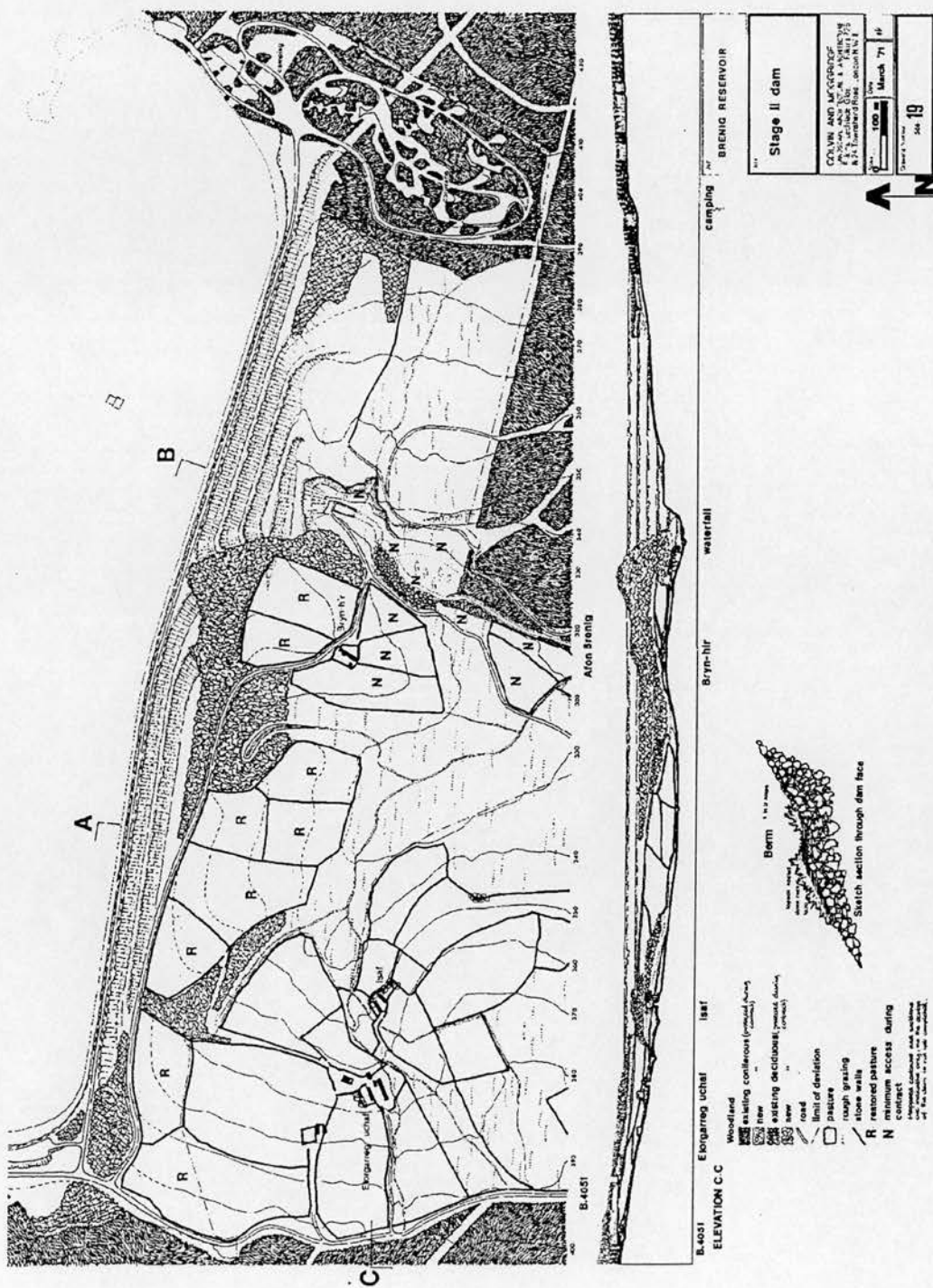
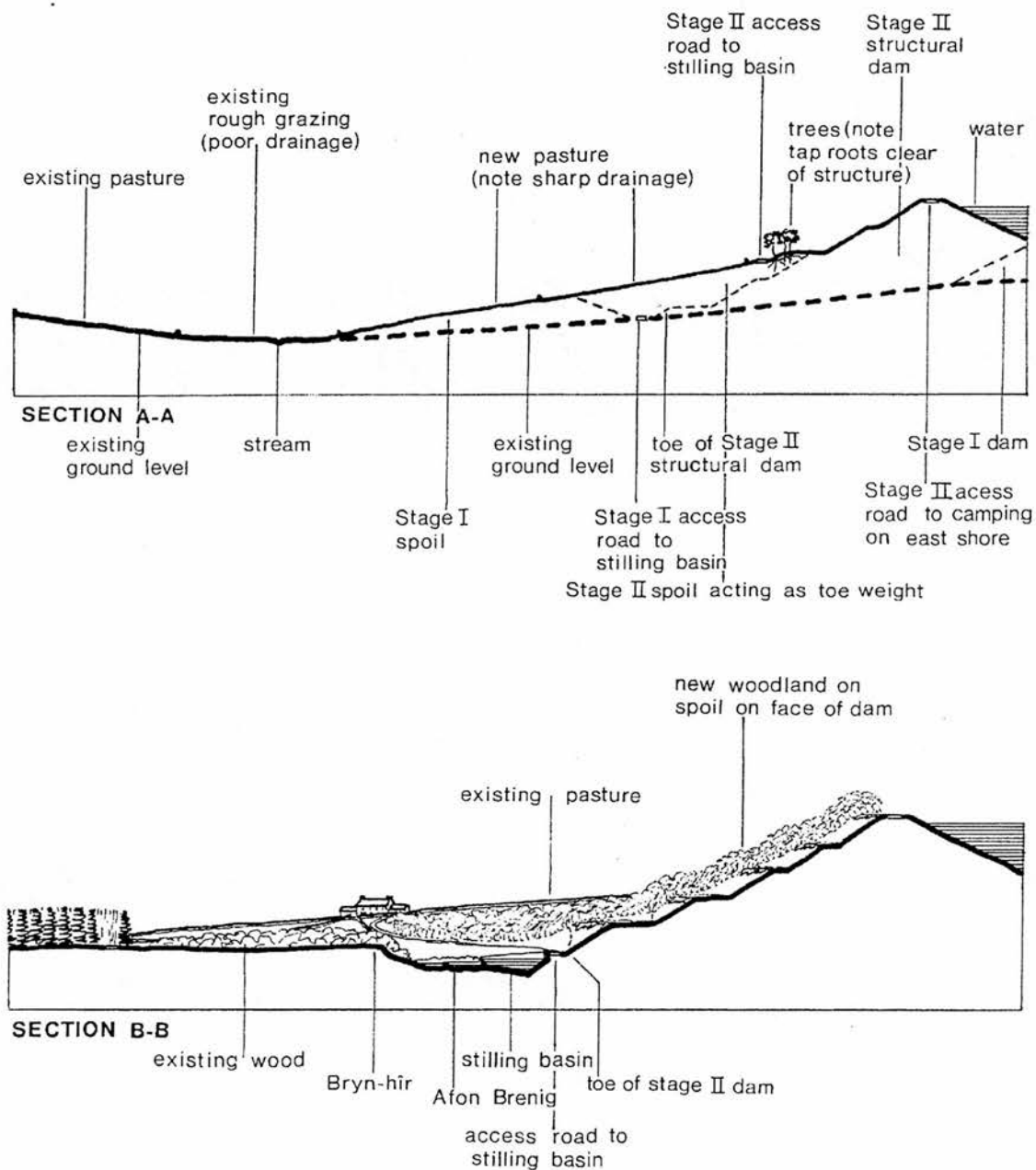


Fig. 3.13: Landscape Proposals for Stage II Dam - Plan (See fig. 3.14 for sections AA and BB). (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



<b>COLVIN AND MOGGRIDGE</b> LANDSCAPE ARCHITECTURE & ARCHITECTURE Filkins, Lechlade, Glos.      Filkins 225 & 24 Townshend Road, London N.W.8.		Job <b>BRENIG RESERVOIR</b>  Sections through Stage II dam
Scale 0    20    60    100 m	Date  March 1971	Drawing Number  566-18

**Fig. 3.14:** Landscape Proposals for Stage II Dam - Sections. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



break the dominance of the crest line seen across the lake, which would otherwise be an unpleasantly straight line, too wide relating to the water surface. It was hoped that the top of the wood when mature, might appear above the crest in silhouette and contrast with the monotony of the crest line. However it could be exceptionally difficult to establish these trees, considering their exposure to high winds blowing across the lake. As an additional measure, minor widening at both ends of the dam, curving it to the hillside, would further soften the crest line (fig.3.13).

The landscape proposals recommended that the stilling basin required below the dam should be located in the gorge at the foot of the dam to make it almost invisible except locally. A straightforward structure using a dark brown concrete would be appropriate and would easily merge into its background. The landscape architects wished to consider detailed recommendations for the siting, form and finish of all minor structures round the dam as they developed in the process.

The recommendation fundamental to the success of the proposed landscape plan was that the construction contract should confine the contractors within a defined area, protecting areas vital to be preserved from disturbance during construction operations (fig.3.7). Since moorland and wetlands including the sites of archaeological interest were particularly vulnerable to damage by heavy vehicles, access north of the dam above top water level was to be strictly forbidden, except along the line of new road-works within a controlled width either side. Short cuts between road-works and top water level were to be forbidden, except along routes agreed beforehand, if essential. The areas around the dam would be the most heavily used during construction, making the restriction more difficult. However, every effort was to be made to protect the landscape assets defined by the landscape architects. The fields around Bryn-Hîr were to be protected from heavy vehicles, if they were to be available for agriculture immediately following the construction. They should be maintained during the contract and could probably be left in the agricultural use.

The proposed downstream works included three pumping stations, positioned at Derwydd, Maerdy and Corwen, respectively 5, 9 and 14 miles south of the dam and pipelines linking these stations with the reservoir buried throughout the whole length (fig.3.15). In addition, there could be a necessity to increase the flow potential of rivers Brenig and Alwen to ensure that they could accept the regulating water from the reservoir. The landscape architects considered the landscape problems arising from these proposals as quite separate from those connected with the

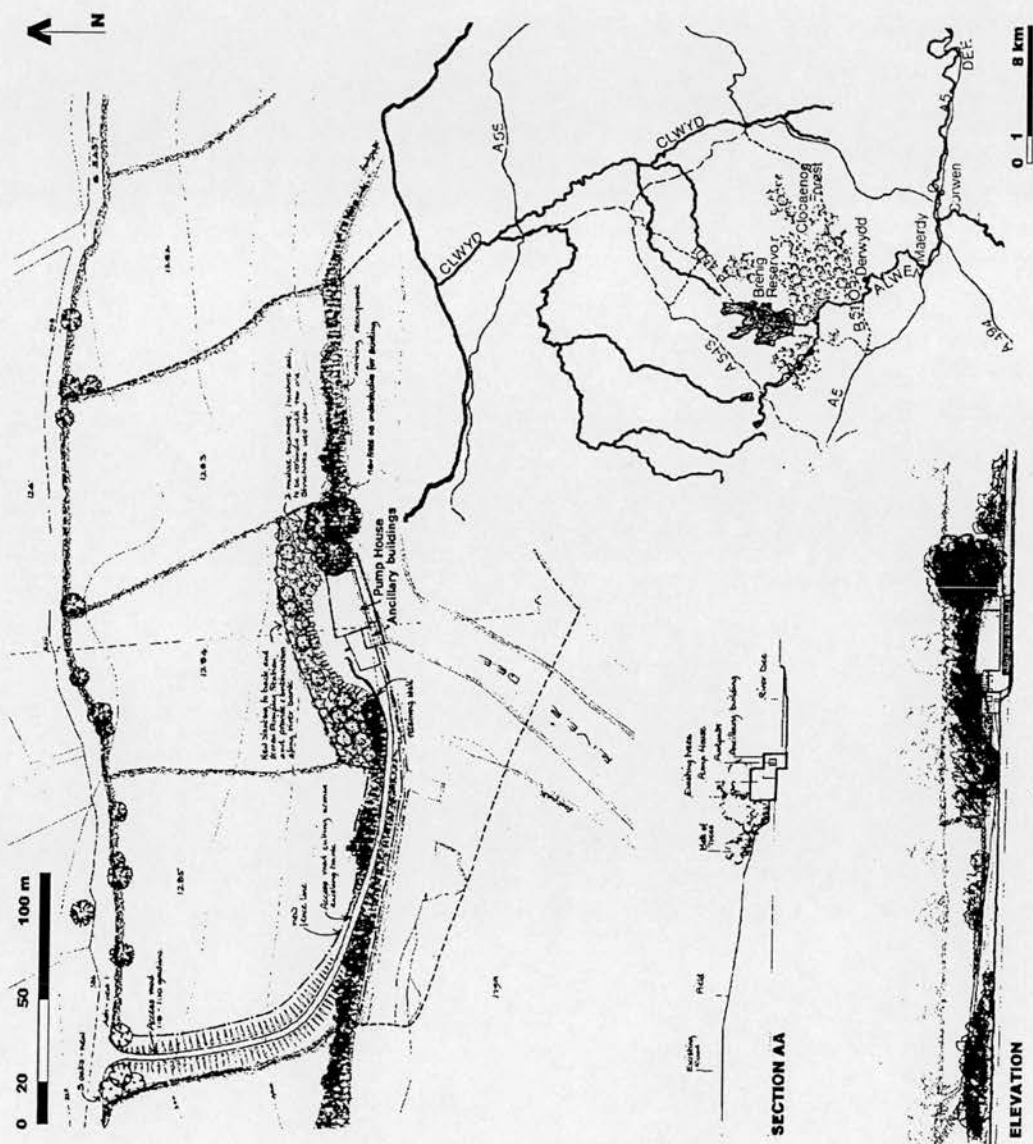
reservoir site. *"The reservoir and dam, though completely changing its environment, were a bold operation on the same scale as the prehistoric geological action. The minor works, in contrast, would modify their surroundings without having the bold scale required to change them significantly"*<sup>1</sup>. The landscape architects therefore proposed that the aim should be to make all the downstream works insignificant items absorbed by their setting.

For this reason, the landscape proposals for the pumping stations were developed as schemes in their own right, separated from the reservoir and one another by physical distance as well as their different landscape settings. It is therefore considered beyond the scope of this case study to discuss these proposals in detail. It is necessary however to add that certain general principles were applied in the landscape treatment of all these installations in order to make them reticent and unobtrusive in their settings. Broadly, the structures were not to be architecturally dominant, but rather, harmonious with the surroundings by form, texture and colour. The existing natural features of the landscape such as trees were to dominate the structures and conceal them and not vice versa. For the same purpose, similar new features such as groves of trees were to be introduced where required (fig.3.15).

Routing and laying of pipelines up to the reservoir needed careful landscape consideration. Since it was rather unlikely that one general route would be better than another, the landscape proposals concentrated on the detailed treatment of landscape features the chosen route would cross. The aim of the landscape proposals for the whole length of the pipelines was to make it unobtrusive, minimise disturbance and to ensure rapid restoration of land uses disturbed. In trenching along agricultural fields, particularly in the valley south of the dam, much care was needed to avoid compression of surrounding land by heavy machinery in wet weather. For restoration to be successful, the trenched top soil and sub soil were to be stored separately, top soil to be replaced uppermost when refilling the trenches. Any land drainage cut by the trench was to be reconnected. Agricultural advice was to be sought in restoring the disturbed fields. Any stone walls broken were to be made good using dry stone construction if the walls disturbed were dry stone. Fences were to be repaired where broken and hedges replanted with the same species as the rest of the hedge. Where the pipelines were to pass through belts of trees, every effort was to be made to minimise felling. After restoration, any trees felled were to be replaced, and new hedgerow planting if desirable carried out in consultation with the landowners concerned. Disturbance to woodlands was to be minimised, and where the pipelines

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<sup>1</sup>*Ibid.*



**Fig. 3.15:** Landscape Treatment for Proposed Corwen Pumping Station. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



crossed woods, the route was to be studied in each individual case to ensure that disruption by possible wind funnelling effect and exposure would be minimised and that proper restoration would be specified. The pipes were always to pass under streams and other natural obstructions. The pumping system would incorporate certain hydraulic structures. Where such an installation would be required at a skyline position, it should be designed as a structure capable of adding a slight but considered feature to the countryside; a cylindrical stone tower, as slender as possible with a sloping top might be a good solution.

The landscape architects were anxious about the effect of downstream river works, although the proposals did not include embanking or formalising the river. The proposals envisaged the necessity to enlarge constrictions of the rivers to avoid regulating waters causing floods. The concern of the landscape architects was that the procedure might make the river form needlessly rigid and mechanical. Afon Alwen was *"a river which flowed gradually, rushing down a stony chase into an irregular pool of level water at the outflow from which was another stony slope. Any freeing of constrictions should be carried out to leave a similar type of river bed"*<sup>1</sup>. The landscape architects recommended that *"this could best be achieved by encouraging the machine operators to imagine the action of time, glacier and river as it had formed the river bed in the past, and by a free interpretation of drawings combined with site instructions"*<sup>2</sup>.

By this stage the proposals for the reservoir scheme had developed to a level sufficient to pursue the planning application procedures. The only aspect that had not been taken into full consideration was the archaeological remains within the reservoir site, although the landscape architects had taken the recorded monuments in the valley head into account when recommending heritage areas to be preserved. In anticipation of the outcome of a likely future archaeological investigation, they added a clause to their proposals that *"if additional features were to be revealed as the work proceeded, measures to conserve, conceal or replace them would then be recommended"*; furthermore, *"if implements of archaeological significance were to be discovered during the winning of material for the dam they should be handed over to the Inspectorate of Ancient Monuments at Cardiff, who should be given the opportunity to visit the site during excavation operations if they so wish"*<sup>3</sup>.

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<sup>1</sup>*Ibid.*

<sup>2</sup>*Ibid.*

<sup>3</sup>*Ibid.*

The proposals for Brenig reservoir scheme were made public in 1971, and having obtained due approval from all the authorities and parties concerned, the scheme commenced its operations in 1972 (Table 3.5).

<b>Table 3.5: Main Statutory Bodies, Principal Consultants and Interest Groups Involved in Brenig Reservoir Scheme and Their Roles</b>	
Dr. H. H. Crann	Chief Officer, Dee & Clwyd River Authority
Mr. R. M. Arah	Binnie & Partners, Consulting Engineers
Mr. P. D. Randall and Mr. G. Thomas	Planning Officers, County Planning Office, Denbighshire
Mr. P. F. Spencer	District Forest Officer, Forestry Commission, North Wales Conservancy, Ruthin
Mr. I. R. Bonner	Bwrdd Gwarchodaeth Natur Cymru, Ruthin
Mr. R. H. Hughes	County Secretary, National Farmers Union, Ruthin
Mr. and Mrs. E. Jones, Mr. E. E. Roberts, Mr. W. R. Williams and Mr. W. C. Edwards	Local Farmers
Major F. Hertzog and Mr. G. T. Hughes	Members of the Council for the Preservation of Rural Wales of Denbighshire
Ms. Frances Lynch Mr. David Allen Mr. John Waddell Ms. Shelagh Grealey	Archaeologist, University College of North Wales Rescue Archaeology Group Archaeologist, University College, Galway Archaeologist, University of Manchester
Mr. Hal Moggridge and Ms. Jennie Heming	Landscape Architects

### 3.6 Rescue Archaeological Investigation

An archaeological field survey of the area undertaken in 1972 listed 51 sites worthy of investigation (fig.3.16), and as a result the Department of the Environment and the Welsh Office sponsored two seasons of excavations in the summers of 1973 and 1974<sup>1</sup>, carried out jointly by the University College of North Wales, the

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<sup>1</sup> Allen D. *op. cit.*, p.1

University College of Galway, the University of Manchester and the Rescue Archaeology Group<sup>1</sup>.

The massive operation of excavations involving 234 excavators took place alongside the even larger operations further south at the dam site, ahead of flooding for the reservoir<sup>2</sup>. This was a classic example of Rescue Archaeological Excavation by definition, although some of the sites excavated were above the expected top water level. This extensive form of excavation provided a unique opportunity to investigate in total a whole group of prehistoric archaeological remains. The initial investigations showed that the barrows at the head of the valley formed an imposing and compact group, their interrelated siting being evidently intentional. The excavations as they proceeded proved that the group as a whole was built as a cemetery during the Bronze Age. Although the group was by no means unique even in Denbighshire, this was a very rare occasion where such a group was excavated in total revealing subtle variations in design, date and use within the cemetery as a whole. The excavations therefore not only unearthed hitherto unknown prehistory of the valley but also broadened the understanding of the significance of such burial areas and their attendant rituals in the life of Bronze Age peoples<sup>3</sup> (Appendix 3.1 / fig.3.17, 3.18, 3.19, 3.21, 3.23 and 3.25).

Considerable concentrations of Mesolithic tools and implements were discovered beneath some mounds on the eastern side of the valley. Radio carbon dates for charcoal associated with the finds confirmed this origin. These finds however were rare or not specific on the western side of the valley except for the date obtained for charcoal beneath Brenig 40. The evidence was inconclusive to represent remains of domestic settlements or specific activity of this period<sup>4</sup>. Yet, it was possible to assume that small bands of Mesolithic hunters occupied the Brenig valley while ranging widely in the area, more than 3000 years before the Bronze Age occupation of the valley<sup>5</sup>.

The excavations revealed that the valley was occupied principally during the early Bronze Age, the mid-second millennium BC. The population then must have been considerable in size to undertake a burial ground of such magnitude. This also

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<sup>1</sup>Lynch F. *et al. Brenig Valley Excavations 1973 (Interim Report)*, **Denbighshire Historical Transactions**, vol.23, 1974, Reprint: p.1

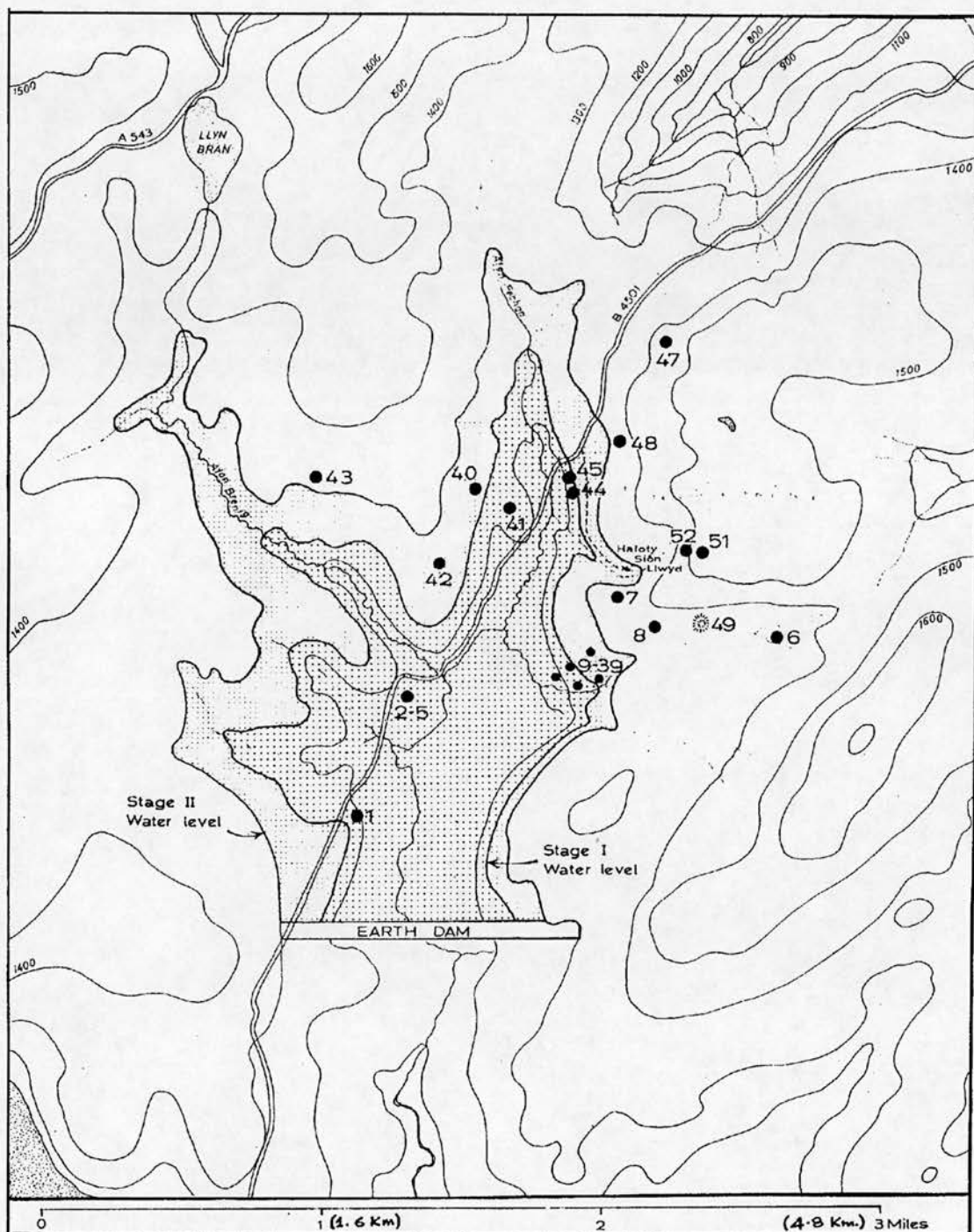
<sup>2</sup>*Ibid.*

<sup>3</sup>*Ibid.*, p.51

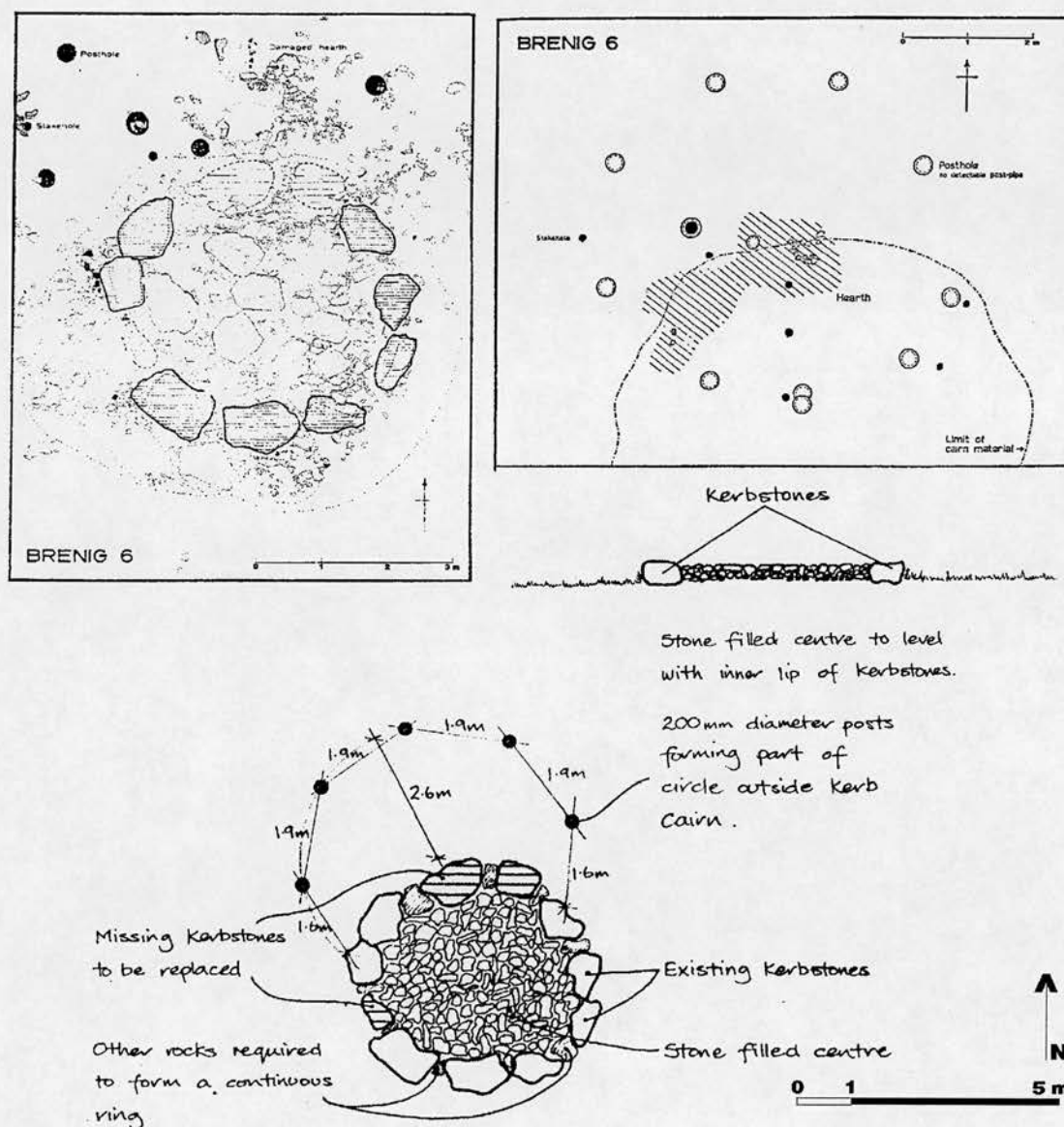
<sup>4</sup>Lynch F. and Allen D. *Brenig Valley Excavations 1974 (Interim Report)*, **Denbighshire Historical Transactions**, vol.24, 1975, p.31

<sup>5</sup>Lynch F. *et al. op. cit.*, p.56

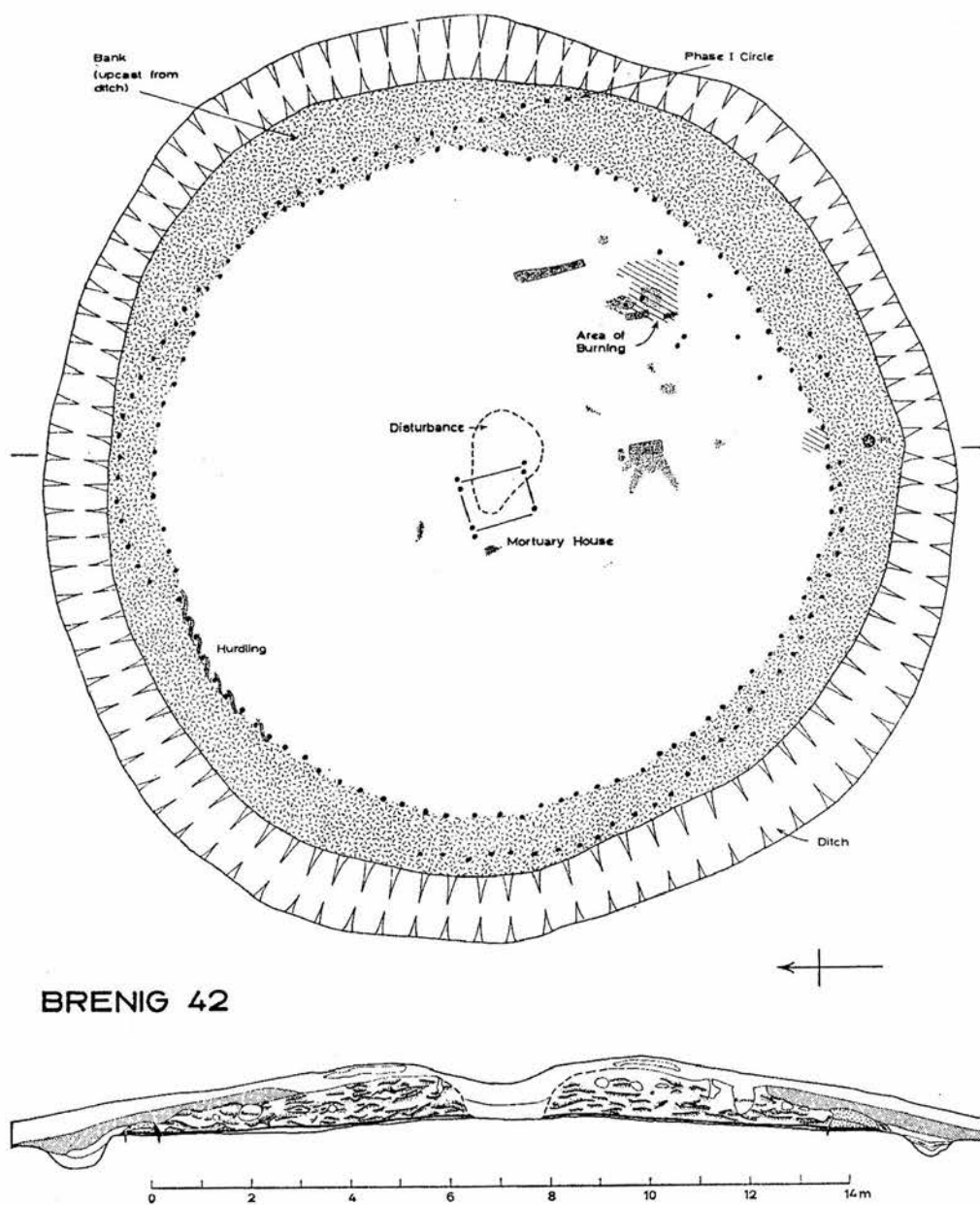




**Fig. 3.16:** Sites Identified as Worthy of Investigation by the Archaeological Field Survey of Brenig Valley in 1973. (Reproduced from Lynch F. *et al. Brenig Valley Excavations 1973 (Interim Report)*, **Denbighshire Historical Transactions**, vol.23, 1974, Reprint: p.3)



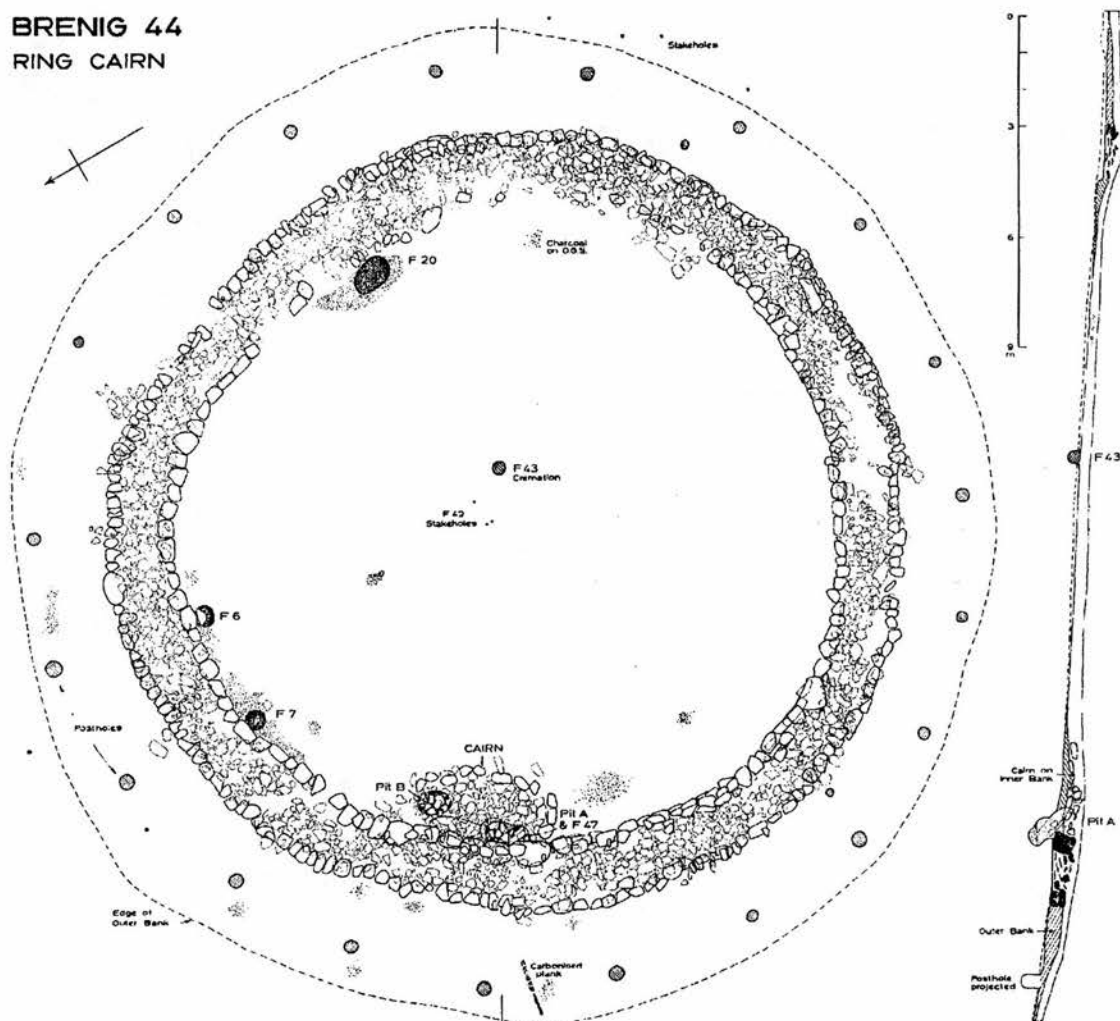
**Fig. 3.17:** Excavation Plans of Brenig 6, Kerb Cairn (Top) and Restoration Detail by the Landscape Architects. (Reproduced from Lynch F. *et al. op. cit.*, p.40: Lynch F. and Allen D. *Brenig Valley Excavations 1974 (Interim Report)*, **Denbighshire Historical Transactions**, vol.24, 1975, p.14 and with Kind Permission from Messrs. Colvin & Moggridge)



**Fig. 3.18:** Excavation Plan of Brenig 42, Burial mound. (Reproduced from Lynch F. *et al. op. cit.*, p.12)

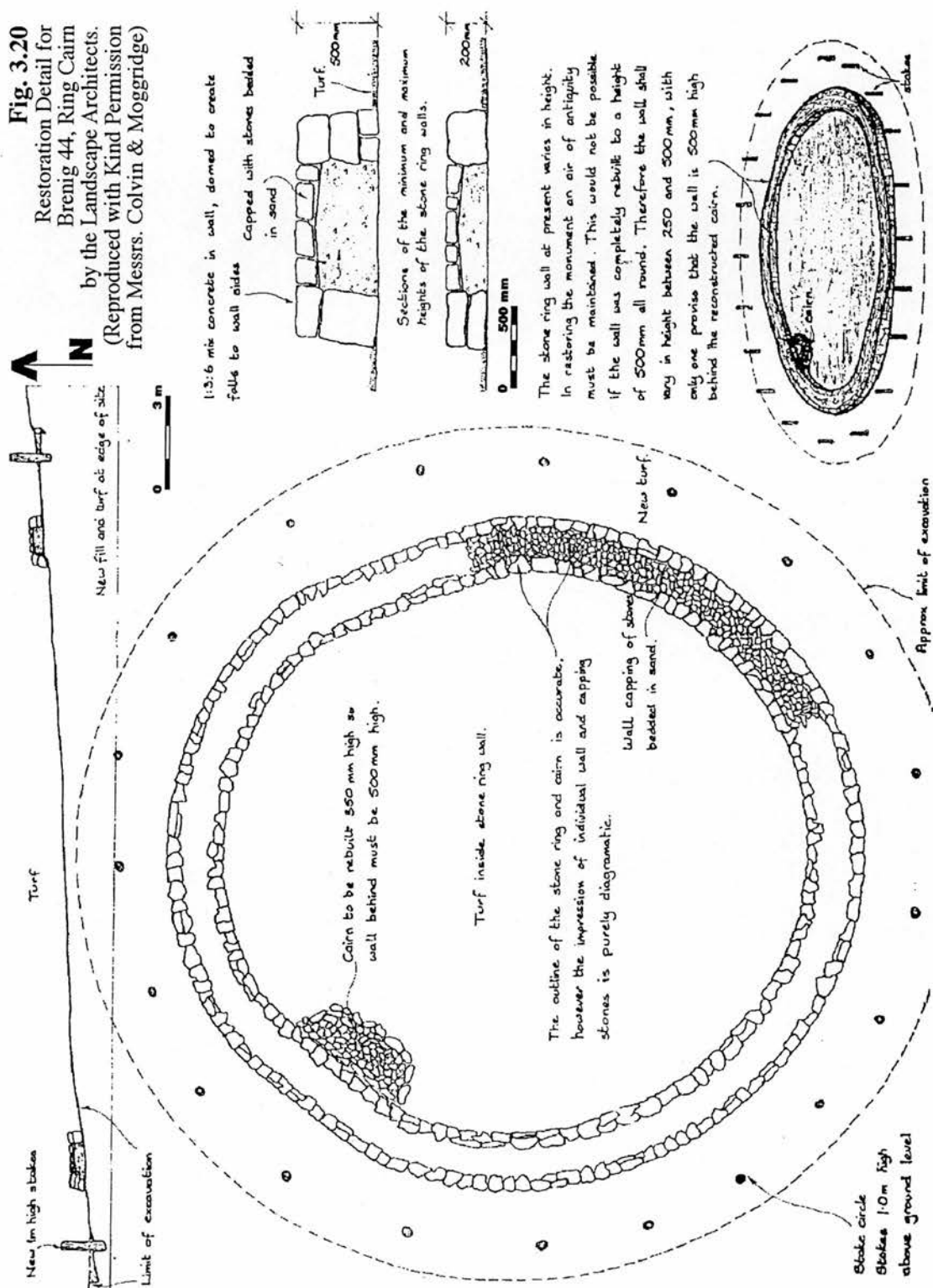


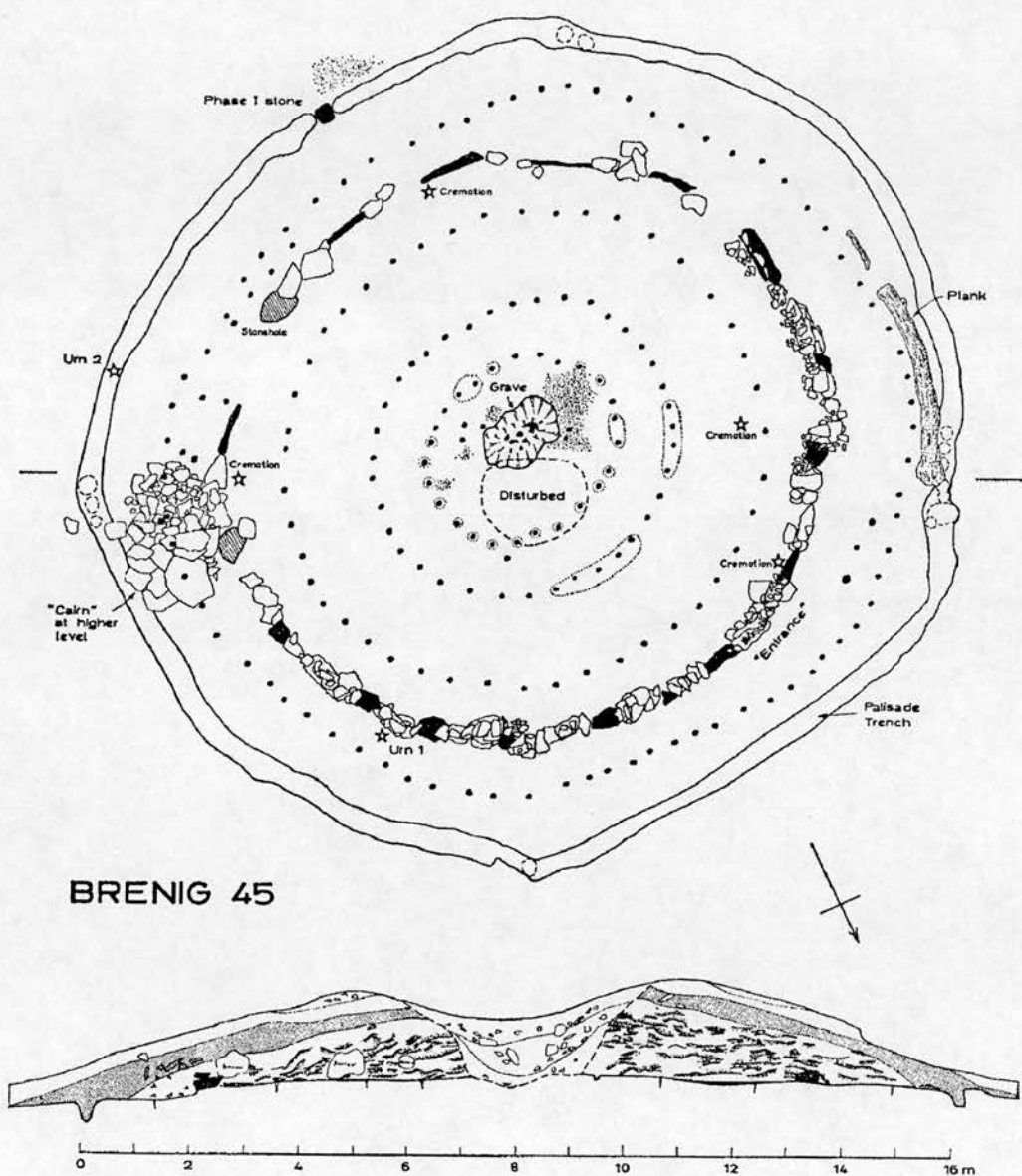
**BRENIG 44**  
**RING CAIRN**



**Fig. 3.19:** Excavation Plan of Brenig 44, Ring Cairn. (Reproduced from Lynch F. *et al. op. cit.*, p.25)

**Fig. 3.20**  
 Restoration Detail for  
 Brenig 44, Ring Cairn  
 by the Landscape Architects.  
 (Reproduced with Kind Permission  
 from Messrs. Colvin & Moggridge)

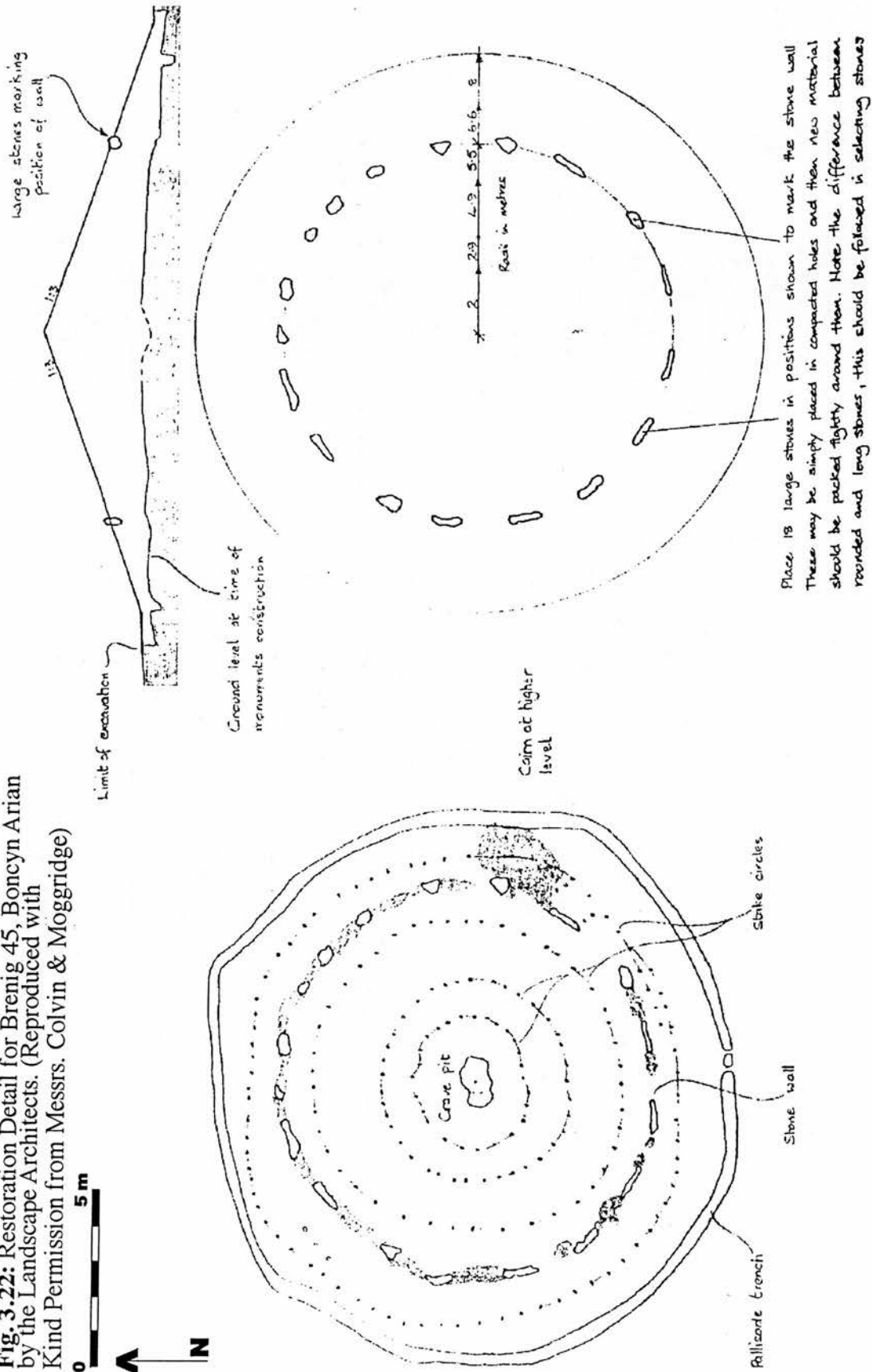


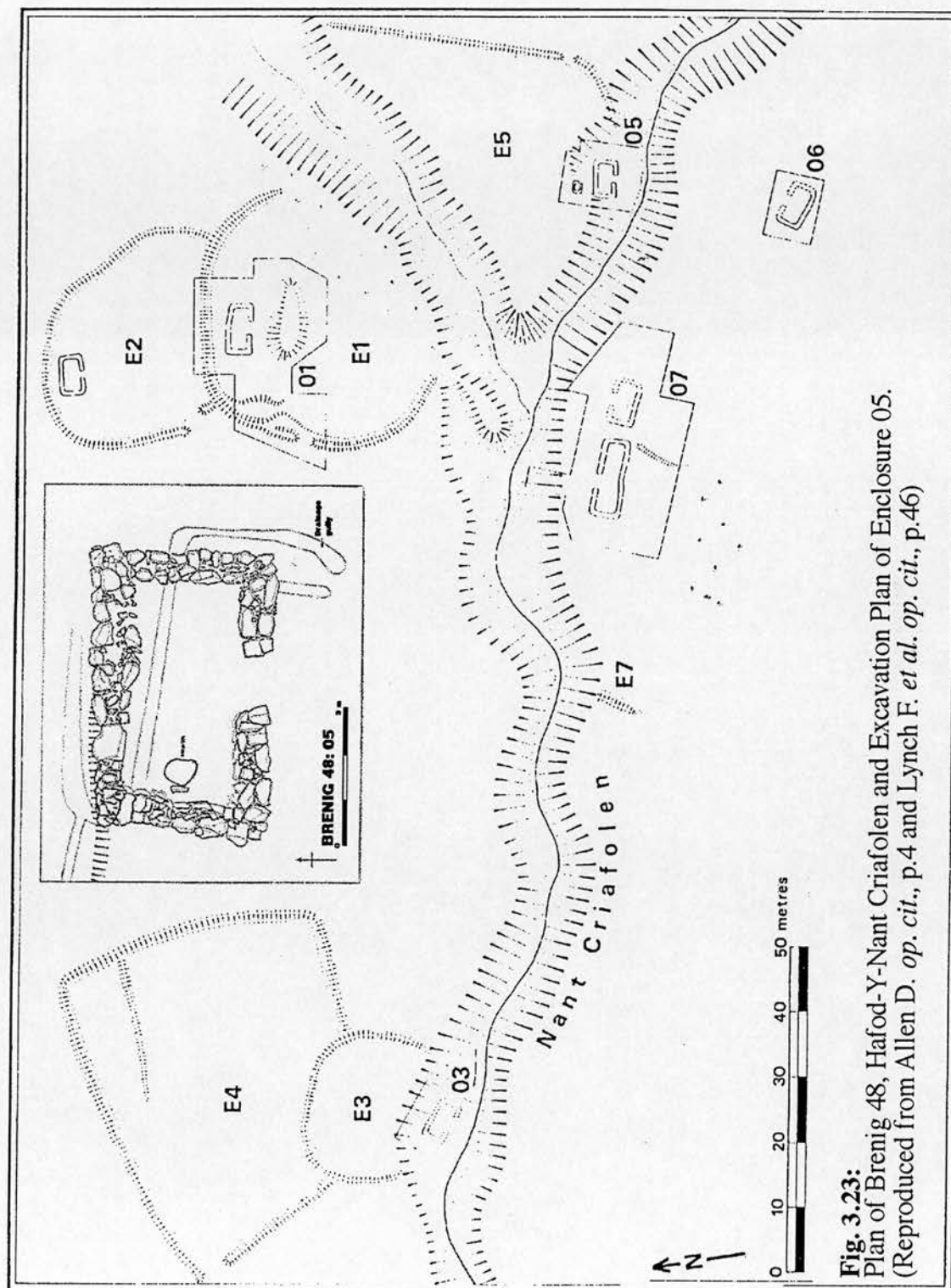


**Fig. 3.21:** Excavation Plan of Brenig 45, Boncyn Arian. (Reproduced from Lynch F. *et al. op. cit.*, p.5)

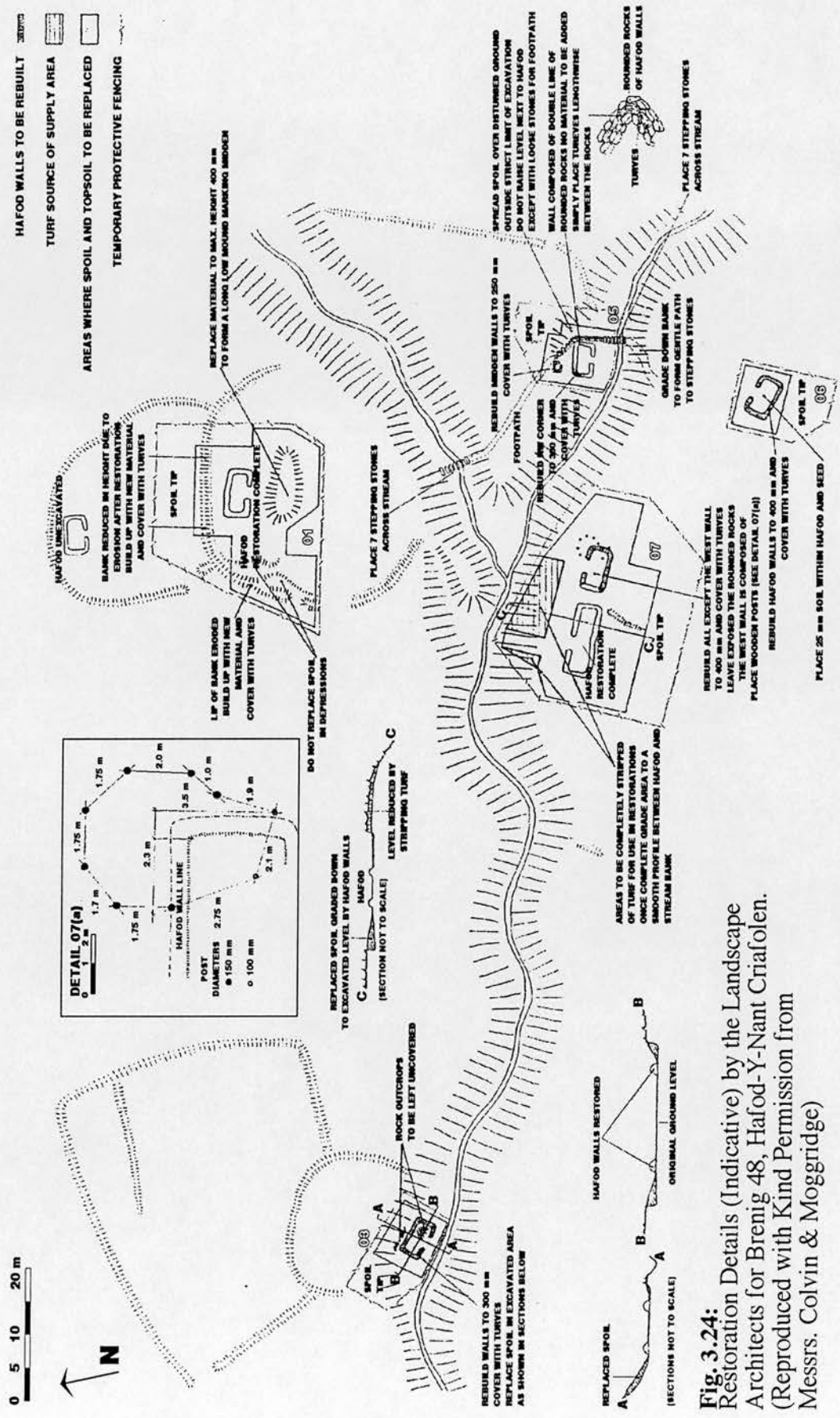


Fig. 3.22: Restoration Detail for Brenig 45, Boncyn Arian  
by the Landscape Architects. (Reproduced with  
Kind Permission from Messrs. Colvin & Moggridge)



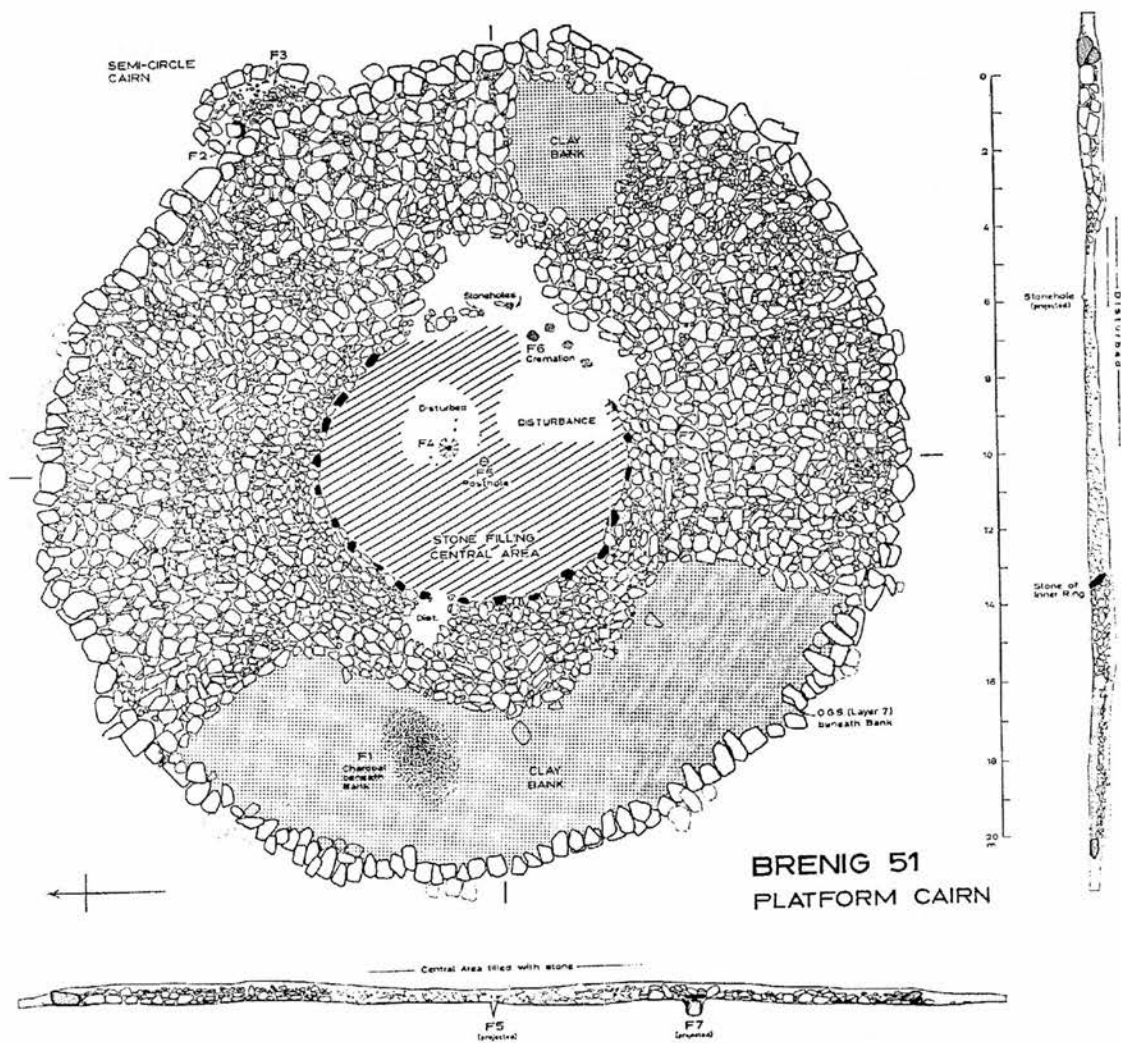


**Fig. 3.23:**  
Plan of Brenig 48, Hafod-Y-Nant Criafolen and Excavation Plan of Enclosure 05.  
(Reproduced from Allen D. *op. cit.*, p.4 and Lynch F. *et al. op. cit.*, p.46)

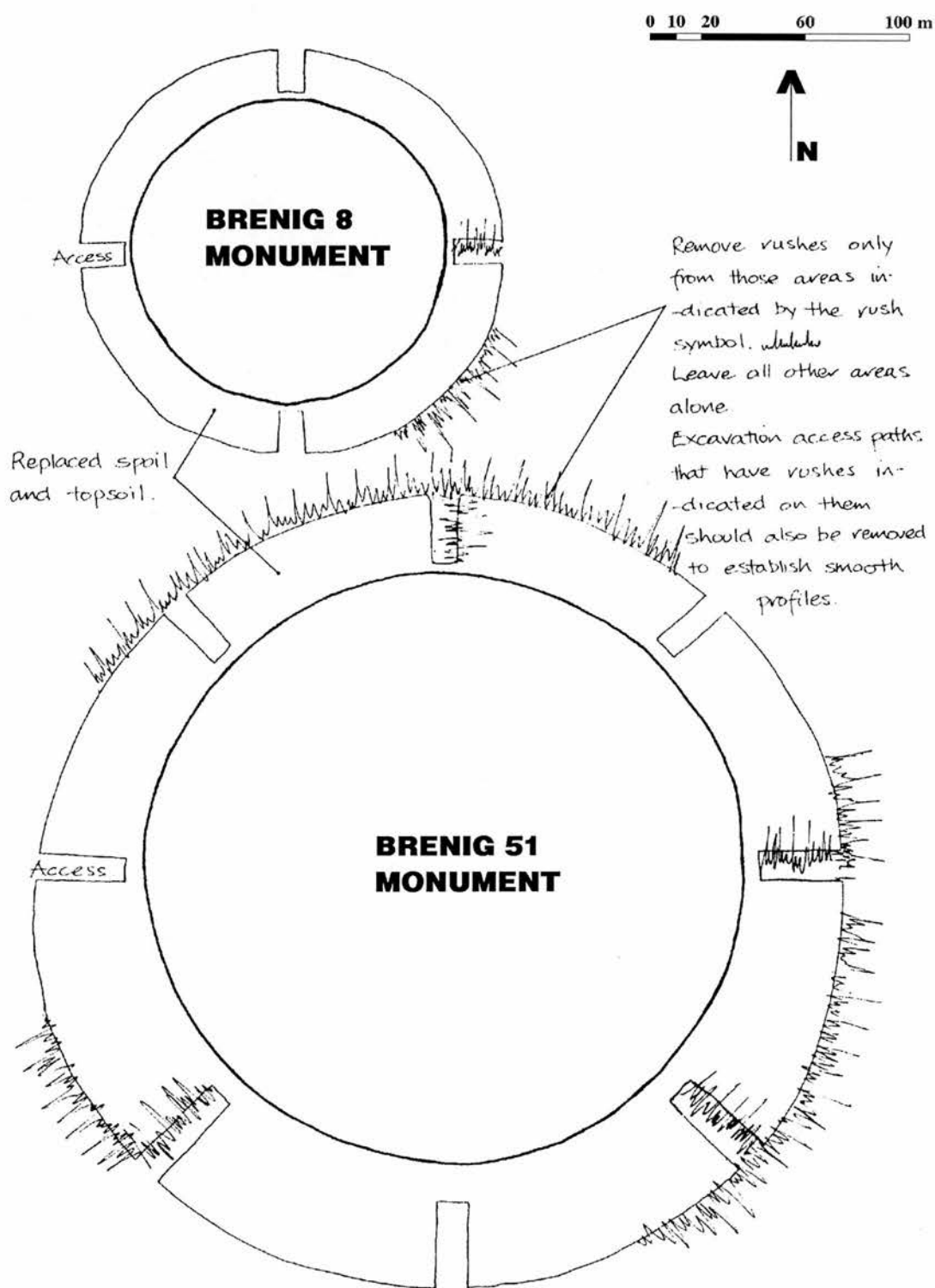


**Fig. 3.24:**  
 Restoration Details (Indicative) by the Landscape  
 Architects for Brenig 48, Hafod-Y-Nant Criafolen.  
 (Reproduced with Kind Permission from  
 Messrs. Colvin & Moggridge)





**Fig. 3.25:** Excavation Plan of Brenig 51, Platform Cairn. (Reproduced from Lynch F. and Allen D. *op. cit.*, p.4)



**Fig. 3.26:** Restoration Details for Brenig 51, Platform Cairn and Brenig 8, Kerb Cairn. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

indicated a considerable social organisation<sup>1</sup>. Brenig 47 turned out to be the earliest construction giving a date of 2100 BC, at least 200 years ahead of the rest of the cemetery. Its unique construction proved that it was by no means a burial mound. Its striking position, visible from most parts of the valley and the cemetery and from a long distance in any direction, suggested that it had been some form of a territorial marker. Pollen analysis also proved that it marked the junction between two distinct ecological zones: an agricultural valley in the south and the moorland in the north<sup>2</sup>. The ring cairn (Brenig 44), one of the most prominent monuments in the group, proved to have served a more significant ritual purpose than a burial use. Ceremonial activities involving placing of charcoal in elaborately dug pits against the inner face of the stone ring had taken place over a long period of time<sup>3</sup>. The available radio carbon dates suggested that the cemetery was in use for a period of 500 to 600 years with three main phases of activity, all three reflected in the Ring Cairn, which maintained its importance throughout (fig.3.27). Brenig 42 (Burial Mound), Brenig 44 (Ring Cairn) and Brenig 45 (Boncyn Arian) were the earliest burial monuments in the group and seemed to have been built within the same phase of activity. This early phase of building would have included Brenig 41 and 47. The second phase of activity seemed to fall within the period between the building and the use of Platform Cairn (Brenig 51), during which time renewed and more concerted activities of modification seemed to have occurred at the Ring Cairn. The building of Brenig 40 seemed to mark the end of this middle phase. A slight variation in its construction, the inclusion of a palisade surrounding the barrow which appeared to have influenced the later modifications at Boncyn Arian, also indicated a significant departure from the hitherto continued burial tradition within the group. After a considerable time lapse, the third and the final phase of activity had begun with the building of Brenig 6, the Kerb Cairn. Once again, there was renewed activity at the Ring Cairn. At the same time the palisade was added to the Boncyn Arian, perhaps replacing an earlier stone kerb<sup>4</sup>. This phase also saw the burial of infant ear-bones at Boncyn Arian, a particularly gruesome Bronze Age ritual noted elsewhere in Wales, further suggesting the change in tradition<sup>5</sup>. Brenig 6, the latest monument in the group had a marked change in construction. Yet, this type of cairn had evolved its distinctive form from an earlier period of Bronze Age<sup>6</sup>. Despite the marked three

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<sup>1</sup>*Ibid.*, p.55

<sup>2</sup>Selkirk A. *op. cit.*, p.232

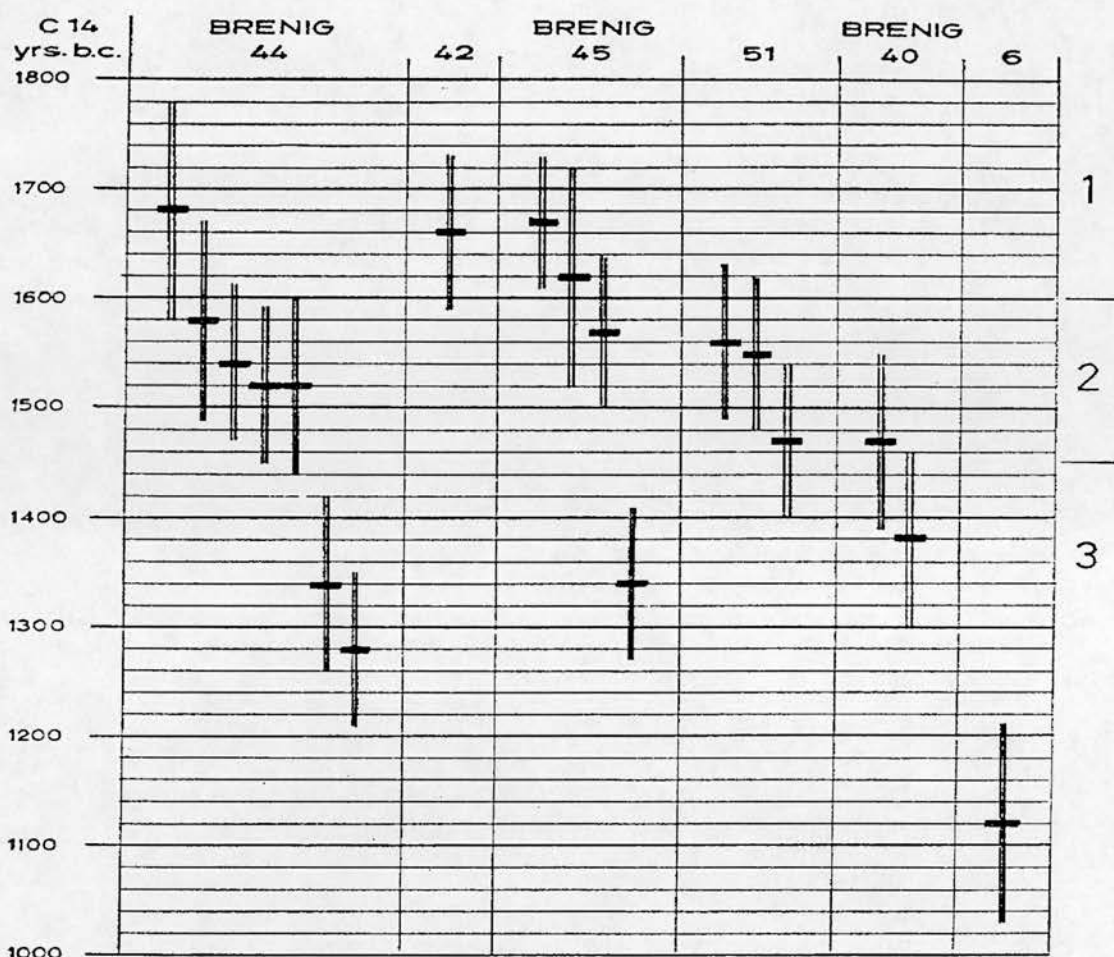
<sup>3</sup>Lynch F. *et al. op. cit.*, p.52

<sup>4</sup>Lynch F. and Allen D. *op. cit.*, pp.34-36

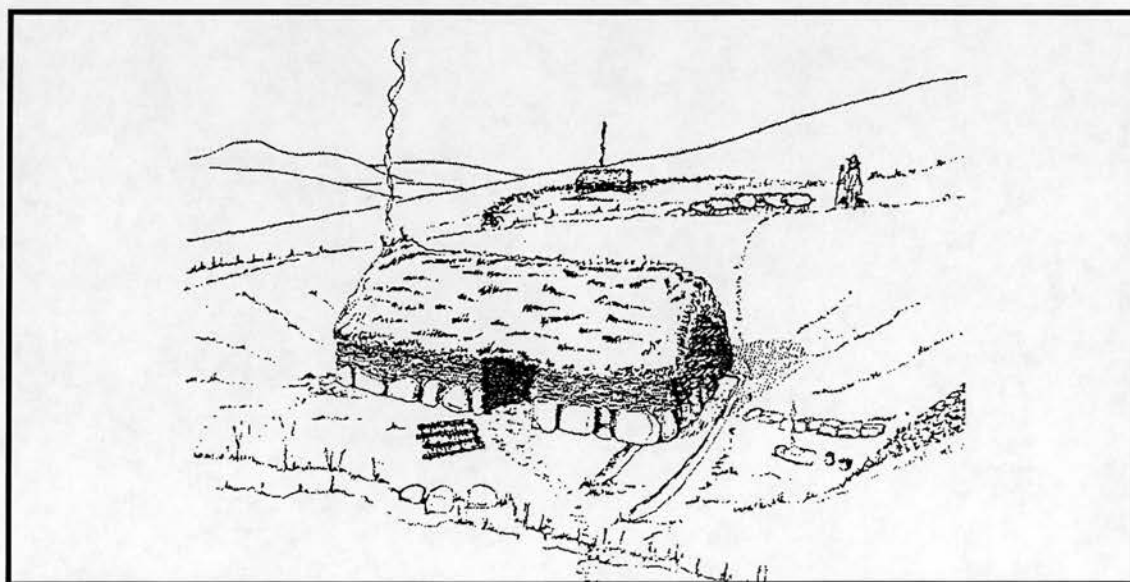
<sup>5</sup>Selkirk A. *op. cit.*, p.236

<sup>6</sup>Ritchie J. N. and MacLaren A. *Ring-cairns and Related Monuments in Scotland*, **Scottish Archaeological Forum**, vol.4, 1972 (1973), pp.8-11





**Fig. 3.27:** Life Span of Brenig Bronze Age Cemetery, Given in Radio Carbon Years, bc. (Reproduced from Lynch F. and Allen D. *op. cit.*, p.6)



**Fig. 3.28:** Reconstruction Drawing of Building Excavated in Area 05 - Brenig 48, Hafod-y-Nant Criafolen. (Reproduced from Allen D. *op. cit.*, fig. 18)

phases of activity, the use and traditions of the cemetery had continued and evolved over the span of its life. In fact, one of the most striking similarities among the barrows was the surrounding stake circles and the wooden 'mortuary houses' in the centre. This tradition seemed to have been an embellishment particularly significant to the Brenig valley community for it had occurred even at the Ring Cairn, a feature not recorded elsewhere at a comparable site<sup>1</sup>. The other striking feature was that most of the barrows were all built for single cremations, while excavations elsewhere had mostly proved otherwise. This seemed to have been another local tradition representing the importance of the Brenig Bronze Age chieftains. The sheer variety of barrows and their multi-phased construction were also remarkable<sup>2</sup>. More surprising though was the contrast noticed between the prodigious effort evidently involved in the construction of such large and complex barrows and the apparent poverty of the community itself, indicated by the paucity of accompanied grave goods as compared to similar sites even within north Wales<sup>3</sup>.

The most unexpected discovery of the excavation was the evidence of Beaker people's activity unearthed at Brenig 6, Brenig 48 and also beneath the Platform Cairn. The Beaker material at Platform Cairn were clearly recognisable. The associated radio carbon dates confirmed that the top of the eastern ridge of the valley was occupied by a people making a domestic type of beaker ware at a time when the head of the valley was already used as a cemetery area. The evidence however, was inconclusive to suggest a settlement. In all three cases, any chance of occupation debris remaining had been eliminated by the clearing and deturfing for the cairns. In the cases of Brenig 6 and Brenig 48, circles of post-holes remained despite disturbance. They both encircled scorched earth in the centre representing hearths. Had either Beaker pottery or any other recognisable debris been found here, a settlement of Beaker people would have been confirmed with some certainty. It was clear that the barrows showed no specific evidence of use by the Beaker people. Yet, one supportive argument was that the Brenig 41 covered an inhumation within the Beaker tradition. The collared urn from Brenig 45 (1670  $\pm$  60 BC) and the Beaker layer beneath Brenig 51 (1550  $\pm$  70 BC) suggested that the beaker making and urn making traditions existed contemporaneously, or that the same community had used both traditions to suit different domestic purposes. However the circles of post holes at Brenig 6 and 48 were similar in both size and construction, reasonably well

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<sup>1</sup>Lynch F. *et al. op. cit.*, p.52-53

<sup>2</sup>Selkirk A. *op. cit.*, p.240

<sup>3</sup>Lynch F. *et al. op. cit.*, p.55

indicating houses built at broadly the same time. A radio carbon date of  $1120 \pm 90$  BC at Brenig 6 confirmed the activity as belonging to the middle Bronze Age<sup>1</sup>.

Data from pollen analysis revealed that the barrows were set in an open landscape, surrounded by grass and sedge-heather with alder and birch growing probably in the valley bottom. It was conclusive evidence that the Bronze Age landscape in the valley was much similar to that of today; the valley was not wooded, nor did the slopes support a richer pasture. Therefore, the moorland landscape would have been chosen for the cemetery to serve those who lived farther down the valley. Pollen analysis of some sites confirmed that the valley farther south was used for agriculture<sup>2</sup>.

The evidence for Neolithic occupation found in the excavation was rather scant, and more surprisingly, no indicators of later prehistoric or Roman activity in the valley were found. A possible explanation for this could be that the deterioration of climate at the time resulted in harsh conditions in such upland valleys, delimiting life and associated pastoral activities. The medieval period was not well represented since no excavation work was possible in the vicinity of Hen Ddinbych. Yet by the sixteenth century AD there was renewed activity in the head of the valley where quite a substantial settlement of houses was built by the stream Criafolen (Brenig 48)<sup>3</sup>.

The situation and outward appearance of Brenig 48 suggested that it was a *hafod*. The excavations confirmed this, indicating that it was established and abandoned in the fifteenth and sixteenth centuries. However, subsequent research failed to unearth the original name of the settlement and therefore, the topographical name Hafod-y-Nant Criafolen was adopted for the purposes of reference. The *hafod* was a summer dwelling used in *transhumance farming*, a practice once was widespread in North-west Europe, in which the farmer, or members of his family, accompanied the flocks and herds, forsaking their winter quarters for a temporary summer dwelling in the upland pastures, the reverse occurring in the autumn. The present practice of rough grazing within the valley could be described as a faint echo of the earlier tradition: the sheep being herded up the slopes in the summer and brought down in the autumn to valley pastures. The Brenig valley would have been favoured for summer grazing, easily accessible from the north along streams feeding river Clwyd and from the south through the wide open valley. Brenig 48 was located

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<sup>1</sup>Lynch F. & Allen D. *op. cit.*, pp.32-33

<sup>2</sup>Lynch F. *et al. op. cit.*, p.55

<sup>3</sup>*Ibid.*, p.56



some 200 m east of one of those possible tracks. The initial investigations suggested that the site had been clothed with heather before 1965. The increased herding of sheep across the area had soon robbed it of this cover<sup>1</sup>.

*"The study of the hafod" had "been comparatively neglected. A great number of these summer settlements was established during the many centuries of transhumance farming in upland Wales, something which was fully reflected in the place-name evidence, and the remains of the monuments themselves"*<sup>2</sup>. The investigation at Hafod-y-Nant Criafolen was not confined to the excavation of the settlement. It also covered the areas in general of the life at *hafod*, the nature of *transhumance farming* and other *hafodydd* in the valley such as Hafod Lom, which was later converted to more recent uses.

The excavations revealed that the buildings would have been structurally very similar, being temporary shelters very crudely built as simple as possible with available local material (fig.3.23). They were rectangular in shape, built on the native ground with low wide walls consisting of boulders and slabs put together with soil and clay often as an infill. They had a single entrance on one of the long sides, generally facing the stream, probably closed by a hurdle of wattle and rush, indicated by the stake hole in the centre. Most buildings would have had a form of an inner partition, possibly with wattle screens. There was no evidence of windows or a light source except for the door and nor was there an indication of any furniture other than the occasional stone bench, suggesting that some furniture would have been brought from the winter dwelling, or that such requirements would have been fashioned from local plant material. Each *hafod* contained a hearth made of stone slabs, which seemed to have formed the centre of social life. In addition, by decree of the *hafod* and *transhumance farming*, a hearth once placed was never removed even when the buildings were deserted or robbed of stones. Other traditions related to the fire were that it was never allowed to burn out and was always well tended as a sign of good fortune.

The evidence of the excavations was insufficient to suggest the form of *hafodydd* roofing. Documentary sources and construction of similar local buildings suggested that the roof was composed of rough unhewn timbers resting on the top of the walls, thatched with heather, reed, rush, straw, ferns and turves. A simple hole in the roof would have served the purpose of a chimney (fig.3.28). Several features at

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<sup>1</sup> Allen D. *op. cit.*, p.3

<sup>2</sup>*Ibid.*, p.57

Brenig suggested that the farmers shared their dwellings with some of their livestock. For this purpose, the houses occasionally had some partitioning and internal drainage gullies. Enclosures adjacent to the buildings indicated that most of the animals were kept outside while, sick or ailing ones occupied the internal quarters. The large rectilinear enclosures outside the houses would have served the main function of animal rearing. Such were normally protected by a bank and a ditch and presumably accompanied by a fence of wattle, gorse or similar material. Among the interesting finds were pottery vessels small to large, spindle-whorls for domestic occupations, knives accompanied by several whetstones, and horseshoes suggesting that at least some farmers rode on horse-back. The discovery of a socketed arrowhead and parts of a sword and pistol implied that the farmers were well armed against the dangers of such a remote location. Other finds included carved objects of folklore significance, possibly used as good luck charms<sup>1</sup>.

The dates attested by the finds and a radio carbon date were unequivocal that the site was used somewhere between the late fifteenth and the late sixteenth centuries. The period of occupation within this time could have amounted to only a few seasons of use. There could of course be no estimated 'life-expectancy' for a *hafod* settlement, as success or failure could have been determined by local as well as other factors. A large number of *hafodydd* became permanent holdings such as Hafod Lom, as the pasture on the land increased. This was particularly true for the area south of the excavations, where 8 of the first 12 farm houses encountered included the element of *hafod* in their name, revealing the former role of these pastures. Others, such as Hafod-y-Nant Criafolen itself, fell into disuse and decay<sup>2</sup>.

The evidence from the Brenig valley excavations, when compared with documentary evidence on prehistoric nomadic or *transhumance* pastoral activities, provided some interesting insights. The moorland landscape, the pollen analysis suggested, would have provided suitable summer grazing. The evidence of the circular wooden structure accidentally discovered in Brenig 48 - area 07 could not be securely dated, but the available evidence suggested that it preceded the stone-built *hafod* by many centuries, and was in fact a prehistoric roundhouse. It was possible that the occupants of the roundhouse chose the site for the same purpose as the medieval farmers. The first reference to *transhumance* in Wales occurred frequently in the laws codified by Hywel Dda, dated 950. Hen Ddinbych and Hafod Lom were later recorded in the fourteenth century. These would have been permanent

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<sup>1</sup> *Ibid.*, pp.51-57

<sup>2</sup> *Ibid.*, pp.47

settlements in the valley by this time, alongside the *hafodydd*. References to *hafodydd* are numerous in the later medieval and post-medieval periods. The *transhumance farming* became a much expanded form of local economy by Tudor times following the Act of Union in 1536. Cattle droving had begun as early as the fourteenth century. By the mid-sixteenth century, the annual migration of cattle from the rearing regions in Wales to the fattening pastures of England had become a prominent part of the economy which maintained its importance for the next 300 years. Denbighshire lay in the track of drovers bringing their herds from Caernarvonshire and Merionethshire, and cattle reared in the Brenig valley would have joined them at Cerrig-y-Drudion, Denbigh or Ruthin. Hafod-y-Nant Criafolen apparently fell out of use by the end of the sixteenth century, although the pastoral economy of which it was a part continued into the seventeenth century and beyond. By the eighteenth century, *transhumance farming* was in general decline, as permanent farmsteads developed. By the mid-nineteenth century it was clearly a part of past history and tradition<sup>1</sup>.

### 3.7 Reconstruction of Excavated Monuments and Presentation

In the summer of 1974 the excavations were completed and the findings were available to the other consultants. They were of such interest that the landscape architects and the archaeologists jointly proposed that the excavated monuments should all be reconstructed and should form an Archaeological Trail as part of the recreational facilities offered by the scheme<sup>2</sup>. These were to include all the prominent monuments above the expected top water level, while some of the submerged monuments were expected to be visible during summer months with lower water levels<sup>3</sup>. The proposed visitor centre was to include a permanent interpretative exhibition on the findings of the excavation, showing some of the most interesting finds. The other finds were to be sent to the national museum in Cardiff.

The landscape architects, with the co-operation and advice of the archaeologists, detailed the reconstruction of all the monuments excavated<sup>4</sup> (fig.3.17, 3.20, 3.22, 3.24 and 3.26). The archaeological trail was laid out following the principles applied earlier within the heritage land uses. The track was mainly to be a lightly marked trail with no intention to lay a formal footpath within the moorland or

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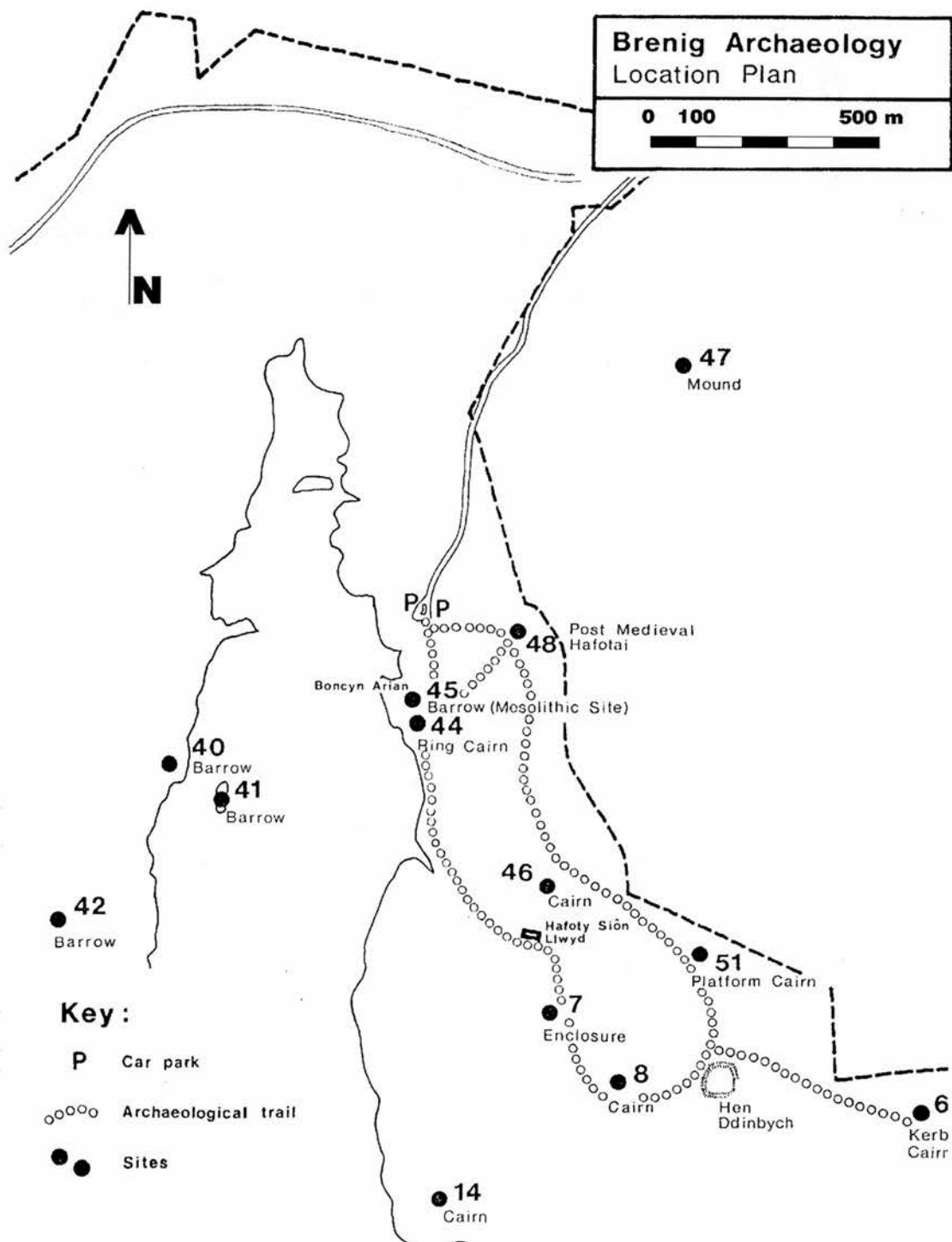
<sup>1</sup>*Ibid.*, pp.47-51

<sup>2</sup>Based on information provided by the landscape architects; also see Moggridge H. (1983) *op. cit.*, pp.65-66

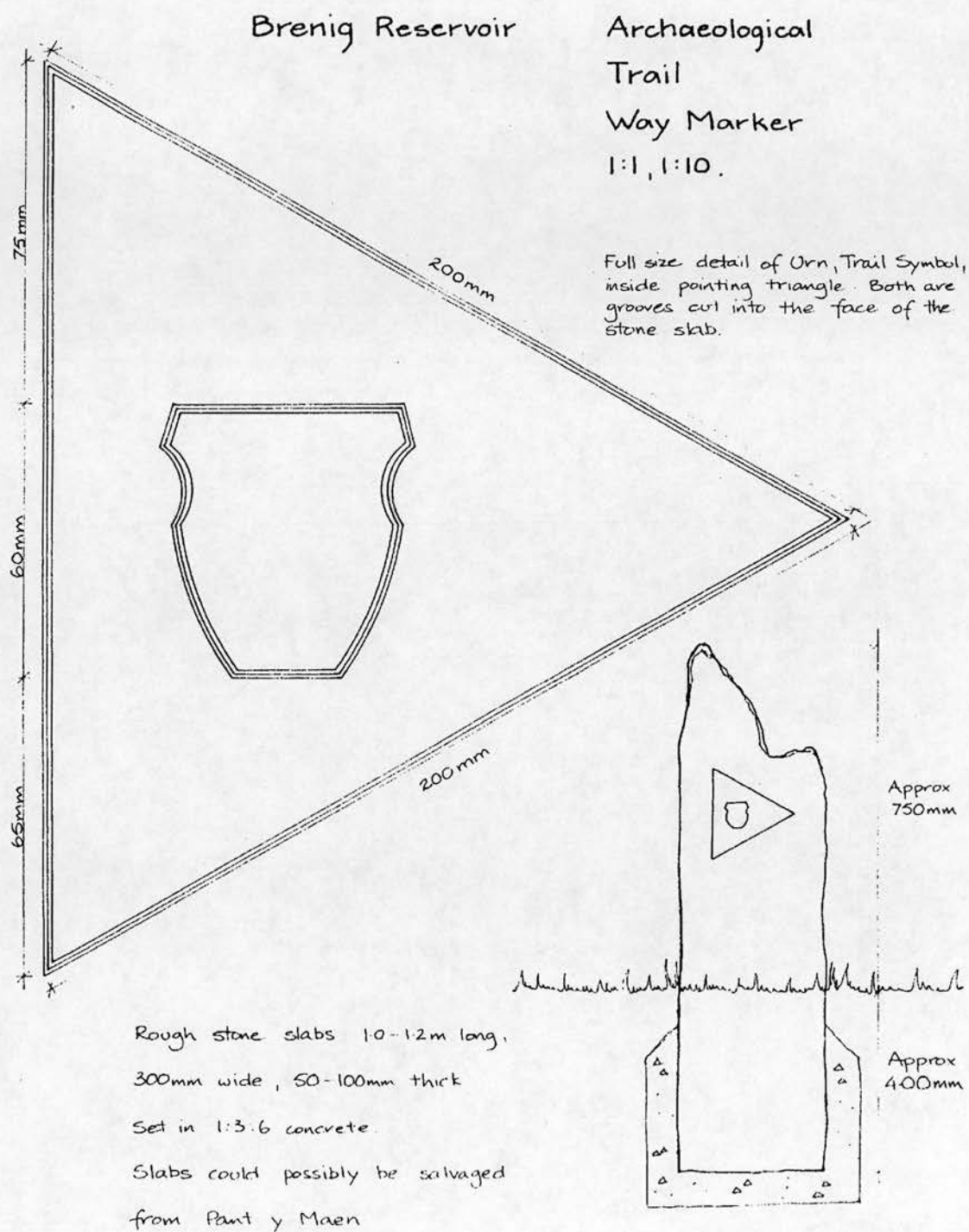
<sup>3</sup>Selkirk A. *op. cit.*, p.230

<sup>4</sup>Lynch F. and Allen D. *op. cit.*, p.14; and Moggridge H. (1983) *op. cit.*, p.65





**Fig. 3.29:** Plan of Brenig Archaeological Trail. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



**Fig. 3.30:** Original Detail for Brenig Archaeological Trail Way Marker. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

the rough grassland. Part of the track to Hafoty-Sîon-Llwyd was included into the trail. A car park with associated facilities was provided both for nature trails and the archaeological trail, well concealed from the south by a new, small block of mixed woodland (fig.3.29). A short trail and a long one were set up. The trails were to be marked by unobtrusive stone or wooden way markers using the profile of the collared urn (fig.3.30). In addition to the information provided at the visitor centre, each monument or site along the trails was to be interpreted by a simple lectern sign.

### **3.8 The Scheme's Appraisal and Discussion**

The Brenig reservoir was visited and examined for this case study during a bank holiday in the summer of 1991, 15 years after the inauguration of the scheme. By this time the designed landscape was well established and ready for assessment.

A first response, strongly confirmed, was that the reservoir in its positioning, extent and shape related extremely well to enclosing land-forms as a quasi natural feature. This was perhaps not surprising as its valley had formerly been occupied by a glacial lake, but the new water body's design, in the balance struck with its surroundings, certainly vindicated the good sense and judgement of the engineers and landscape architects.

Much less successful was the treatment of the dam. The natural hill above Bryn-Hîr had been remodelled and moulded against the face of the dam to divide its bulk into two unequal units. However, the scale of this modelling had not been sufficient to achieve the desired effect. Remodelling had instead rendered the hill appear unnatural in its form, partly due to the lack of any established tree growth on it. Despite being attached to the dam face, the hill appeared as a separate form, which served only to screen a relatively small portion of the dam. Behind this, the dam read as a single linear structure that remained highly obtrusive from both high and low ground, in its mass, its outline and its colour. The reason for this dominance was the lack of any ground modelling or masking with vegetation cover on the prominent upper half of the dam face along much of its length. A photograph of the dam taken four years after its construction confirmed that the landscape architects had in fact treated the dam face with soil masking and turfing to achieve an irregular mosaic of vegetation cover and rock scree, as they had proposed in their construction details (fig.3.31). By the time of the study visit however, there was no evidence of any such masking on the upper half of the dam face. It was clear that the vegetation cover had not established and the soil masking had eroded away, leaving the monotonous mass of rock fill exposed along much of the dam face. The lower half of the dam in



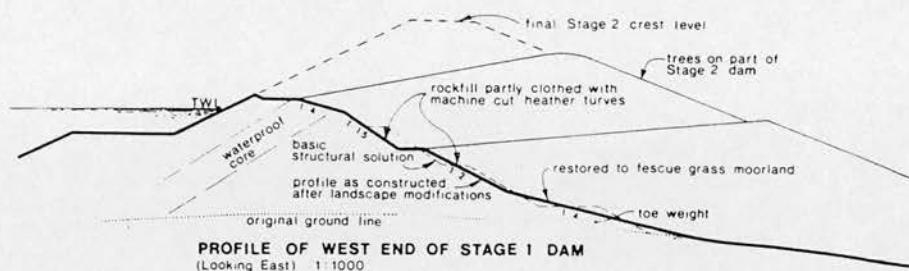


Fig. 3. The dam face. Restoration of the face of the dam was the most challenging problem. The cross-section shows modifications to the profile of the dam from the designed engineering structure (dashed line) to the restored landscape structure as built. These modifications were aimed at reducing the apparent height of the dam and softening the regularity of its shape.



Fig. 4. Photograph showing different surface textures produced upon the profile of the dam. These differences were introduced to break down the large scale of the structure to a scale comparable with hills around. The gradual slope at the toe of the dam is totally grassed as if it was part of the original landscape. The steeper slopes are treated with areas of the bare stone from which the dam was constructed and areas restored to vegetation.

**Fig. 3.31:** A Photograph of the Brenig Dam Taken in 1980 (Below) and Corresponding Elevational Profile (Above) Illustrating the Preparatory Treatment Given to the Stage I Dam in Anticipation of a Second Stage of Construction. The soil and vegetation cover on the dam visible in the photograph had eroded away by the time of the visit for this case study. (Reproduced from Moggridge H. (1983) *op. cit.*)

contrast remained clothed in turf cover, and successful ground modelling had made the base and toe weights of the dam merge well with the land-forms of the valley below. Similarly, moulding of the dam into the valley sides at its either end had been largely successful.

Comparison of the detailed landscape proposals for the dam with the finished structure showed that the landscape architects' failure to subdue the dominance of the dam had been largely due to the anticipation of a second stage of construction for the reservoir (see page 97). The bulk of the landscape proposals for the dam had been reserved for the treatment of this then envisaged second stage structure (see pages 122-128 and *cf.* fig.3.12, 3.13, 3.14 and 3.31). The dam that was built therefore had been intended as a preliminary structure, and its treatment had been preparatory or limited to what would have been later incorporated into the then proposed stage II dam. This second stage of construction had not materialised so far, and inquiries made for this study confirmed that it was no longer considered necessary<sup>1</sup>. The result of this rather unfortunate planning error was an unfinished and poorly treated dam that dominated the valley landscape. It was a pity that the landscape architects and the engineers had not considered the possibility of the second stage not being implemented and not taken the precaution of treating the stage I dam as a more permanent and better finished structure. This however is not an error that cannot be corrected. The dam may easily be treated with appropriate ground modelling and vegetation cover, if Welsh Water, the company who now owns the reservoir, chooses to do so in the future. Soil retention and establishing vegetation on the steep and exposed dam face should no longer be a problem as more advanced and reliable technologies are now available for such treatment.

The next most striking feature of the site landscape was the fragmentary nature of its overall expression. The valley did not read as a single unified landscape, but rather as three different areas distinct from one another by their character or physical separation. The northern portion of the reservoir and the surrounding moorland and rough grassland, including their conserved ecological assets and reconstructed archaeological sites, read as a preserved part of the former valley with its historic character perpetuated and even enhanced. Similarly, the valley below the dam had retained much of its essential rural tranquillity. These two areas showed much affinity towards one another, simply because they were what had remained essentially unchanged from the former valley. However, they were physically

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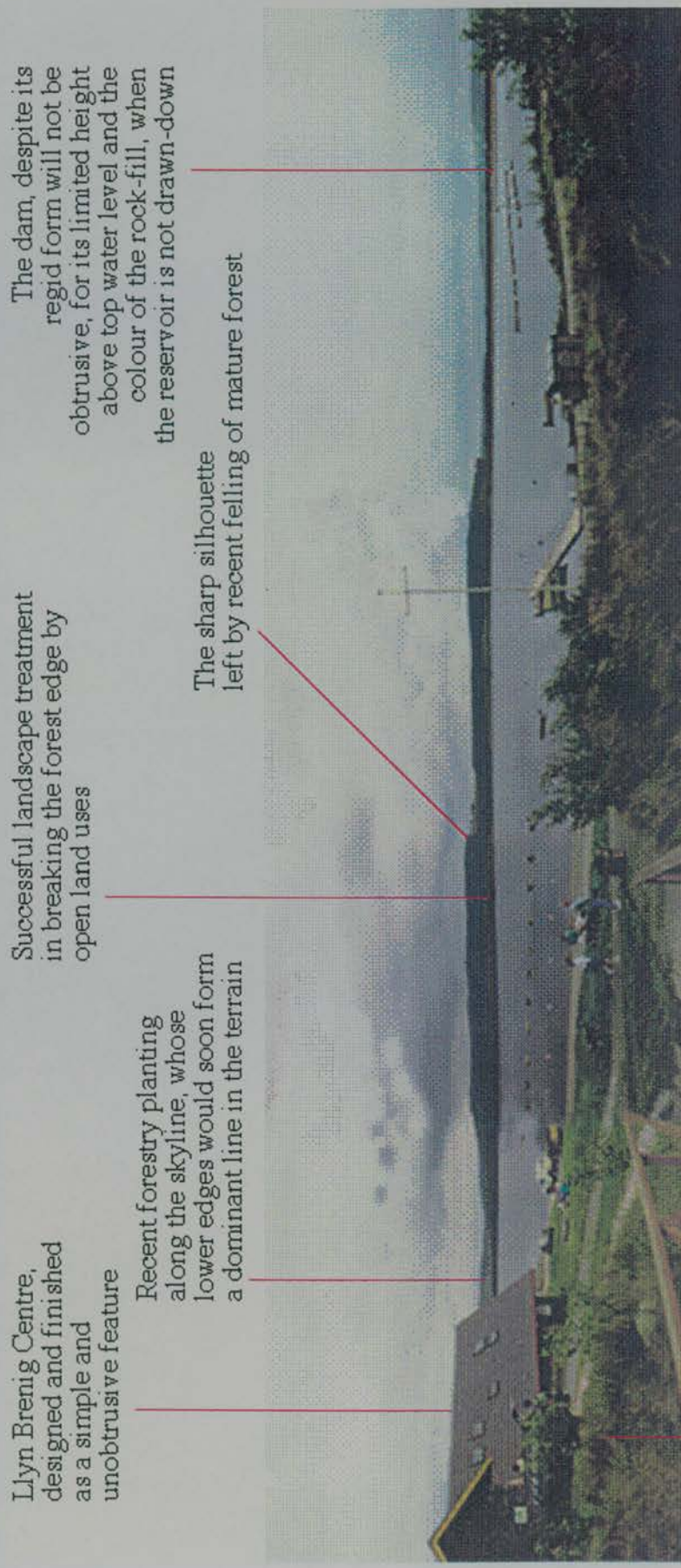
<sup>1</sup>Information provided by Welsh Water, the privatised public utility company now owns and responsible for the Brenig reservoir.

separated and isolated from each other by the development in the central part of the reservoir site, including the large southern portion of the reservoir and its dam and the surrounding extensive economic forestry and recreational facilities. Overall character of this latter area was modern and somewhat transient, in sharp contrast to the visible signs of age and continuity that generated the traditional character of the two former areas (*cf.* fig.3.32, 3.33, 3.34 and 3.35).

This easily read fragmentation of the site landscape appeared to correspond closely with the broad land use planning concept that the landscape architects had used for developing their landscape plan (see page 107 and fig.3.8). The aim of the planning concept had been to protect and perpetuate the heritage value of the northern and southern parts of the valley by confining and concentrating recent and new land uses such as economic forestry and intensive visitor recreation within the central area of the site. The landscape treatment had been largely successful in achieving this primary aim, for the forestry expansion beyond the central area had been reasonably disciplined since the scheme and the visitor circulation and intensive use appeared to concentrate around the visitor centre and surrounding recreational facilities on the western shore.

However, the detailed landscape treatment of the central area had not been effective enough to bring about the harmony and balance that the landscape architects had aimed to achieve between the old and the new. The result of this failure was the disparity of character between heritage areas and the central part of the site without a gradual transition of expression. The main reason for this abrupt change of character was the dominance of economic forestry and the previously discussed poor treatment of the dam. The reservoir, with its successful integration with the land-forms of the valley and with the natural aesthetic qualities of the water surface, provided a smooth enough flow of space between the north and the south. However, the dominance of the forestry was so strong that it disrupted this flow of space. The landscape architects' efforts to break the dominance of the forest edge had been limited to inserting open land uses irregularly along the lake shore. This had been successful enough where the forest reached the water's edge in bold sweeps, and on the western shore where the forest had been well used for sheltering and screening recreational facilities (fig.3.32, 3.33 and 3.34). However, where the forest edge ran along the valley sides the open land uses did not serve to counterbalance its dominance, for the edge was linear, regular and tall, and the texture and the colour of these conifer monocultures were strong and monotonous (fig.3.33, 3.36, 3.37 and 3.38). The landscape architects' approach to planning and designing of this dominant





Llyn Brenig Centre, designed and finished as a simple and unobtrusive feature

Recent forestry planting along the skyline, whose lower edges would soon form a dominant line in the terrain

Successful landscape treatment in breaking the forest edge by open land uses

The dam, despite its rigid form will not be obtrusive, for its limited height above top water level and the colour of the rock-fill, when the reservoir is not drawn-down

The sharp silhouette left by recent felling of mature forest

Appropriate species planted without unnecessary clearing or over-detailing



**Fig. 3.32: The Southern End of the Brenig Reservoir**

Mature forestry conceals the recreational facilities located within. The scene is rather peaceful despite heavy use behind the forest screen

Recent forestry planting along the skyline would form an enclosing lower edge when mature and, more importantly, a sharp northern edge on the skyline



Well established annual and perennial herbaceous vegetation indicates the length of current drawdown and demonstrates that their natural and irregular cover in places of suitable cover can help alleviate the visual effects of drawdown.

Fig. 3.33: The Central Portion of the Reservoir



A



B



**Fig 3.34: The Rural Solitude of the Former Valley Perpetuated on the Northern Slopes.**

**A:** Hafoty-Sŏn-Llwyd with its rural setting unaffected by the adjacent development.

**B:** North-eastern slopes with continued traditional land uses, the car park for archaeological trail / moorland well sited and concealed from the south, the tracks inconspicuous. The aims of the landscape proposals have been achieved with mature forest edge farther south. The line of the dam visible, yet unobtrusive, also broken by the hill above Bryn-Hŏr. Visual effect of drawdown was minimal at this scale.





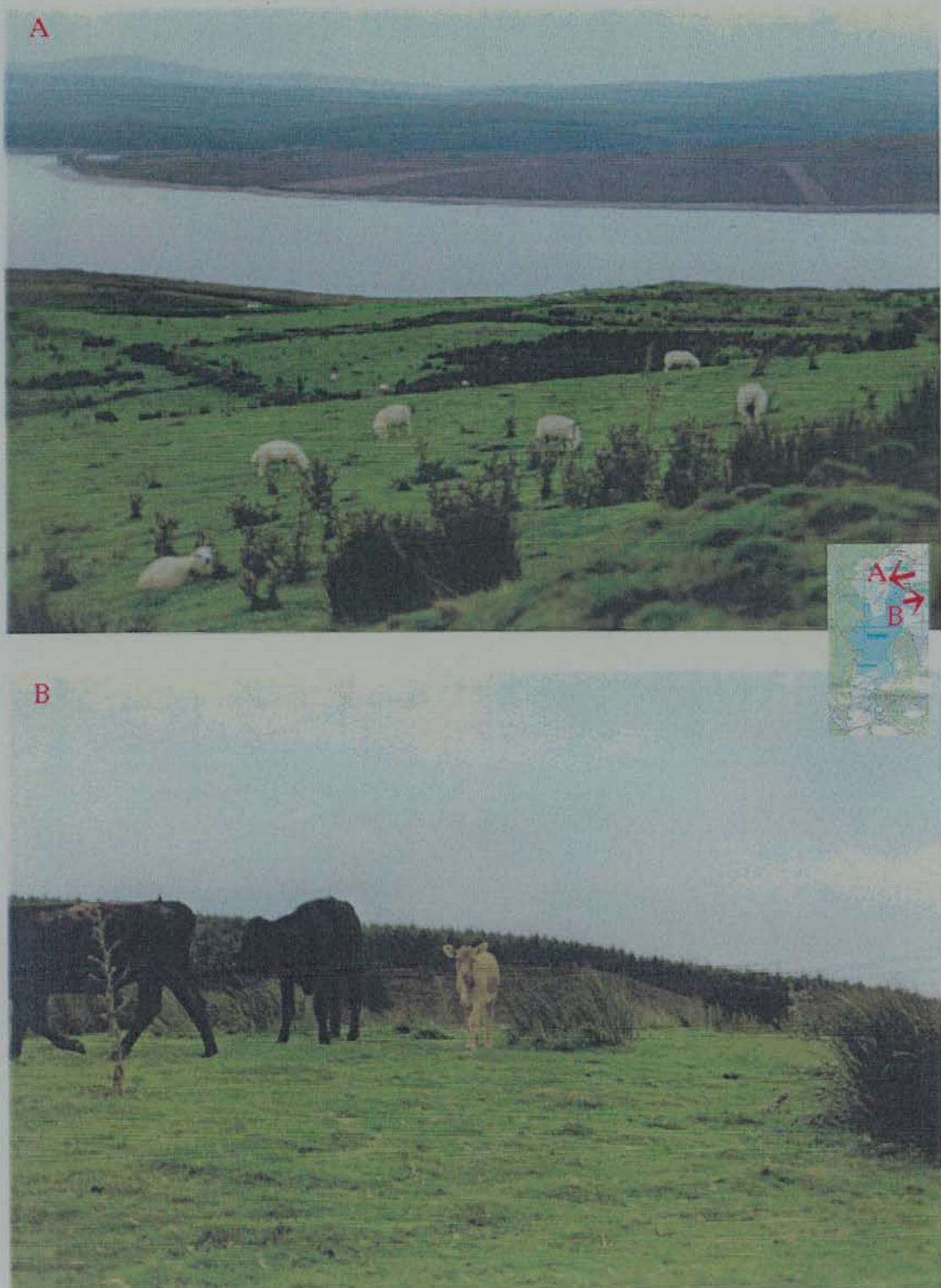
**Fig. 3.35:** The Splendour of Boncyn Arian (Brenig 45) - **A** and Ring Cairn (Brenig 44) - **B** and **C**, After Reconstruction. The harmony original landscape proposals aimed to achieve between water and surrounding land uses has fully materialised in **A**. This is somewhat diminished by the forestry appearing in the background in **B**, a crucial departure from the original recommendations of the landscape architect. **C** clearly illustrates the contrast between the old on the east shore and the new on the west shore.



**Fig. 3.36:**      **A** - The Magnificence of Platform Cairn (Brenig 51) in its Commanding Position in the Landscape. The surrounding finish of rush-pasture without formality or a cleared, formal approach to the monument maintains the historical character.

**B** - Hafod-Y-Nant Criafolen (Brenig 48) Showing Access to the Monuments with No Formal Tracks; sparingly marked trail lies over rough grassland maintained by casual grazing. The harmony achieved here between the lake and the traditional land uses has already been marred by the recent forestry block on the right, which, as it matures, will form a linear southern edge rather dominant in the land form.





**Fig. 3.37:**     **A** - Visually Degrading Effect of Recent Path Clearance in the Moorland as Compared to the Beauty of Rough Grassland in the Foreground. The effect of drawdown is quite considerable in a local scale. The dominance of mature forestry, in contrast to moorland is rather pronounced here.

**B** - Recent Forestry, Monoculture Planting on the Skyline Along the Eastern Ridge of the Valley. The forest will soon form an enclosing and rigid edge along this line, obtrusively visible from the western shore.





**Fig. 3.38:** The Relationship between Mature Forestry and other Land Uses at Brenig Reservoir, and the Firm but Understated Handling of the Archaeological Feature in the Foreground.

and therefore crucial element of the valley landscape has been restrained and compromising as compared to their achievements elsewhere on the site (see pages 111-117).

The skill of the landscape architects was most evident in the treatment of the moorland high ground. This had been carefully isolated well away from those parts of the site most crowded and intensively used around the visitor centre; and the latter and its flanking picnic and parking areas were well screened by the lake shore forest. Above these the moorland and its sequence of reconstructed and conserved archaeological sites read very appropriately in a simple open landscape maintained by grazing. The resulting rush grassland gave an added authenticity in continuing the traditions of the past, and the whole achieved a calm solitude to which the reservoir and its reflections of the sky contributed still further (fig.3.33, 3.34, 3.35 and 3.36).

The good work of the landscape architects in the moorland area was particularly evident to the north and east of the lake. Here the new access and its tracks, paths, fences and signs had been carefully understated and detailed very unobtrusively. Those, together with the reconstruction of the excavated archaeological sites, were without exception sympathetic and successful. (fig.3.34, 3.35 and 3.36). Less successful, unfortunately, were the wide straight tracks cut into the moorland on the west shore for the renewal of the moor by rotational burning (fig. 3.37). It was a pity that the landscape architects had not anticipated the visual impact of these and planned their alignment by example as unobtrusively as everything else. This may still be easily done.

Effective landscape treatment in the valley below the dam had ensured that its character was not affected by the pipelines and other ancillary works. Care taken in routing and laying of the pipelines had made the restoration following this work very effective, and as a result their routes were hardly detectable. Similarly, the widening works on the river Alwen had not conceivably affected its natural beauty. The pumping stations and other structures downstream had all been carefully understated in their detailing and well integrated with their settings.

The visitor centre itself occupied a lakeside position just north of the dam, rather than further set back as initially recommended by the landscape architects (fig.3.32, *cf.* fig.3.10 and 3.11). The building form was appropriately low and unobtrusive, but appeared rather isolated and odd at the time of the visit with the lake water level drawn well down. The recreational open spaces extending from the centre were obviously popular and well used. Their distribution, connecting

circulation and detailed design were largely successful. The picnic areas in particular had worked out well and had attracted intensive use without suffering degradation. So also had the shoreline service areas for sailing and wind surfing. The open space between the shoreline and the B4501 access road (fig.3.38) would have benefited from additional tree planting.

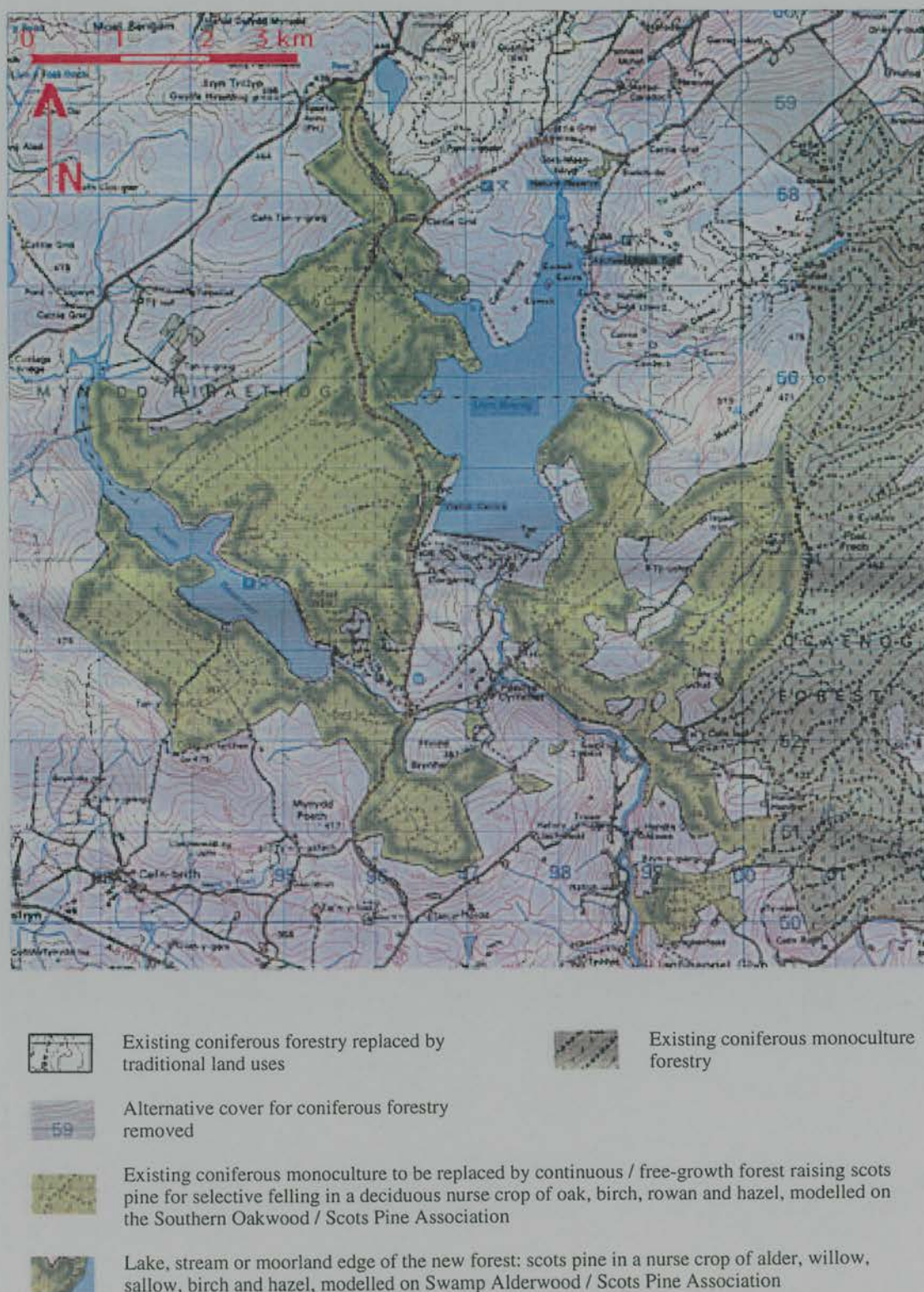
The sense of place within the conifer planting and its flanking open spaces was unexceptional and similar to that of a typical British forest park, but here again the circulation and detailing was sensibly simple. Difficulties of land ownership previously referred to had made the shaping and placing of this planting in places awkward and obtrusive, and this had not been helped by later extensions carried out without the assistance of the landscape architects (fig.3.32, 3.37 and 3.38; *cf.* fig.3.2, 3.3A and 3.10).

The study visit was made during a period when the reservoir was in an extreme drawdown, to expose a rim of lake bed continuous along the shoreline. It was irregular in width and its visual impact therefore was largely local. Landscape architects' precautionary measures, including planting treatment, were effective in some areas in reducing its impact. In addition, the varied texture and colour of the exposed lake bed and the herbaceous vegetation that had colonised it in some localities due to the length of the drawdown helped further alleviate the rim's visual impact. In the southern part of the reservoir however the visibility of the rim appeared more harmonious with the surroundings than the dominant forest edge (fig.3.32, 3.33, 3.34 and 3.37).

History is essentially a demonstration of process. A landscape architect seeks to select and conserve those aspects of a landscape which best demonstrate its past and contribute most to appropriate present and future usage. At Brenig the landscape architects realised at once that commercial forestation of a kind similar to that on Ilech Daniel adjoining the site to the south would not be appropriate. What was most required was the openness of windswept moorland to best place and explain the landscape of transhumance practised here since the Neolithic. This they realised would make the best and the strongest connection with the transhumance of a twentieth century car owning public intent on using the site for recreation.

This connection has been best achieved around the northern half of the reservoir, where continuity and harmony bring about the valley's essential spirit of place. Farther south, however, the continuity is disrupted by the dominance of forestry which occupies much more than its fair share of the land uses. As a result,





**Fig. 3.39:** Sketch Illustrating A Possible Alternative Form of Economic Forestry to Enhance the Quality of Breng Valley Landscape: The type of forestry suggested here is not composed of quick growing and continuous yielding species, but a free growth type of native species yielding in long rotations high quality timbers for specialist markets. Its investment will be long-term, but with very low maintenance input and therefore cost after the initial establishment. The present forestry at Breng is largely the monoculture type composed of quick yielding spruces, and there is little variation in this composition. This type of forestry is for quick commercial gain, and the type this diagram suggests can hardly be an alternative if commercial profits are the only concern. The economic value of a type similar to what is suggested here should be conceived as a combination of its long term profits and the benefits to the landscape quality of the valley, and therefore to its amenity and the recreational potential. This form of amenity forestry is widely used in sensitive landscapes in countries like Switzerland and Norway.

this part of the landscape reads differently from that of the north and lacks any appreciable spirit of place. The landscape architects' efforts to break the dominance of the forest edge here have been compromised by landscape management decisions beyond their control. Their efforts have been largely limited to inserting open land uses into the forest so that the edge would not be too regular. This has been effective in some places, but a form of deciduous woodland planting to mask the forest edge could have resulted in a more harmonious effect (fig.3.39). Now that the Forest Authority has understood and is practising the need to shape and design its coupe management in sympathy with the surrounding landscape and other land uses, future projects of this kind should offer landscape designers a more sensitive client response<sup>1</sup>.

For all its weaknesses, then, in co-ordinated design and management, Brenig is a good example of what has been achieved collaboratively by landscape architects in Britain over the past 30 years, and particularly in co-ordinating and expressing the site's archaeological resources. The overall weaknesses of the achievement at Brenig that have been discussed in this case study can only improve and strengthen in future joint ventures.

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<sup>1</sup>Bell S. *op. cit.*, pp.189-193; Forestry Commission **Forest Landscape Design Guidelines**, March 1989, Edinburgh; and Lucas O. W. R. **The Design of Forest Landscapes**, Oxford University Press, 1991, London; cf. McCluskey J. *Shroud for the Scottish Landscape*, **Landscape Design**, No.164, December 1986, London, pp.48-51

## Chapter Four

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### *Knole Park Restoration Scheme*

The Restoration Scheme for the deer park at Knole came about when the landscape architects were approached for advice following the park's devastation in the freak storm of October 1987. The scheme presented here as the last case study is particularly chosen for the thesis as an example of those landscapes and features that are commonly regarded as of historic rather than archaeological value (see Chapter 1, p.6). As the following detailed case study will confirm, Knole Park as a whole proved to be a valuable resource of early medieval origin, which had remained largely unchanged over some five hundred years due to the continuation of its traditional land use pattern. It proved to provide a direct link with the '*Wildwood*' that covered much of Britain up to the medieval period, and as a result proved to be a rare ecological asset that supports ancient associations of flora and fauna. The following account firstly details the landscape, archaeological and ecological values of the park and then describes the landscape architects contribution in using this knowledge to identify, restore and enhance the medieval ambience of the park.

#### **4.1 Description of the Park and its Archaeological and Landscape Importance**

Knole park at Sevenoaks in Kent is one of the few surviving medieval deer parks in Britain<sup>1</sup>. The park at present occupies an area of 344 ha, forming much of the eastern fringe of Sevenoaks, a medium-sized, residential and market town lying in the London metropolitan green belt, less than 10 km from the south-eastern edge of Greater London and within 2 km from the M 25 junction with the M 26 (fig.4.1).

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<sup>1</sup>Of the thousands of deer parks recorded to have existed in Britain prior to the sixteenth century only a few remain at present as traditional deer parks. Many were either abandoned or changed in use in the later medieval and post-medieval periods (Rackham O. (1986) *op. cit.*, pp.126-129; and Prior R. **Deer Watch**, David & Charles, 1987, London, p.77). Knole is one of the very few medieval deer parks that have survived, with their traditional use of free- ranging deer management continued throughout the history. In Kent, Knole Park today remains the sole, continuous survivor of the 54 deer enclosures recorded by Lambarde in 1570 (Lambarde W. **A Perambulation of Kent** (1570), 2nd Ed., Adams & Dart, 1970, Bath, p.51; Shirley E. P. **Some Account of English Deer Parks with Notes on the Management of Deer**, John Murray, 1867, London, pp.70-71; and Talbot White J. **The Parklands of Kent**, A. J. Cassell Ltd., 1975, Kent, p.16).





**Fig. 4.1:** Location and Regional Landscape Setting of Knole Park (Reproduced from Ordnance Survey of Great Britain, 1: 50,000 Series, 1992, Maidstone - Sheet 188, and Oxford University Press *The New Oxford School Atlas*, 1990, p.33).



The park is the principal asset and the largest financial liability of Knole Estate, which holds a total of 769 ha of land to the east of Sevenoaks. The estate is held in trust for the Sackville family, who have owned it for twelve successive generations since Queen Elizabeth I granted the Manor of Knole to her cousin, Thomas Sackville, the 1st Earl of Dorset, in 1566<sup>1</sup>. The assets of the park alone include 7 residential properties, 3 of which are listed grade II, 3 km of listed grade II park wall and a herd of 600 deer, a majority of which are believed to be direct descendants of the deer which occupied the park in the Tudor era<sup>2</sup>.

The centrepiece of the park is the famous Knole House and its walled garden, which form a large rectangular enclosure covering an area of some 11 ha (fig.4.2). The house, which, according to some assertions, consists of 7 courtyards, 52 staircases and 365 rooms<sup>3</sup>, is one of the largest country houses in England<sup>4</sup> and one of the most romantic edifices of Tudor architecture, full of faded, melancholy splendour redolent of the past (fig.4.3). The exterior of the house is perhaps deceptively modest for the vast wealth of antiquity within, including an unrivalled collection of seventeenth century upholstered furniture, and numerous paintings from the sixteenth to eighteenth centuries<sup>5</sup>. Viewed from the north east, the house, in what Sackville-West describes as "*the rude jumble*" of "*uncouth and elementary*" structures of early Tudor origin, appears "*more like a medieval village than a private dwelling*". The south frontage facing the walled garden, with its Elizabethan and later embellishments, is "*much more gay*" in appearance<sup>6</sup> (fig.4.4). The great, fern-topped wall that encloses the garden is intermittently broken by ornamental iron railings and gates which allow glimpses through to the, otherwise concealed, south frontage of the house. The garden appears to have evolved to its present, somewhat inharmonious form through several centuries of change from a layout of horticultural interest, much

<sup>1</sup>See Appendix 4.1

<sup>2</sup>See pages 192 and 196

<sup>3</sup>Knole House has the legendary status of being an edifice designed to represent the weeks, the months and the days of the year by the numbers of its courtyards, stairways and rooms respectively (Campbell Dixon A. *Orlando's Woody Knole; A Day Out*, **The Sunday Telegraph**, June 10, 1990, London, Review Section, p.ix). Phillips, who describes the layout, interior and content of the house in full, confirms the above numbers, adding about 540 windows to the list (Phillips C. J. **History of the Sackville Family**, Cassell & Co. Ltd., 1929, London, vol.II, pp.340-368), while Sackville-West states that "*This, at least, is the legend: I do not know that anyone has ever troubled to verify it.*" (Sackville-West V. **Knole** (?), 2nd Ed., The National Trust, 1971, p.5).

<sup>4</sup>de Haen V. *Knole Park: After the Storm*, **Landscape Design**, No.191, June 1990, p.19

<sup>5</sup>Campbell Dixon A. *op. cit.*; and Phillips C. J. *op. cit.*, pp.340-368

<sup>6</sup>Sackville-West V. **Knole and the Sackvilles**, Lindsay Drummond Ltd., 1947, London, p.1; and Sackville-West (1971) *op. cit.*, p.6

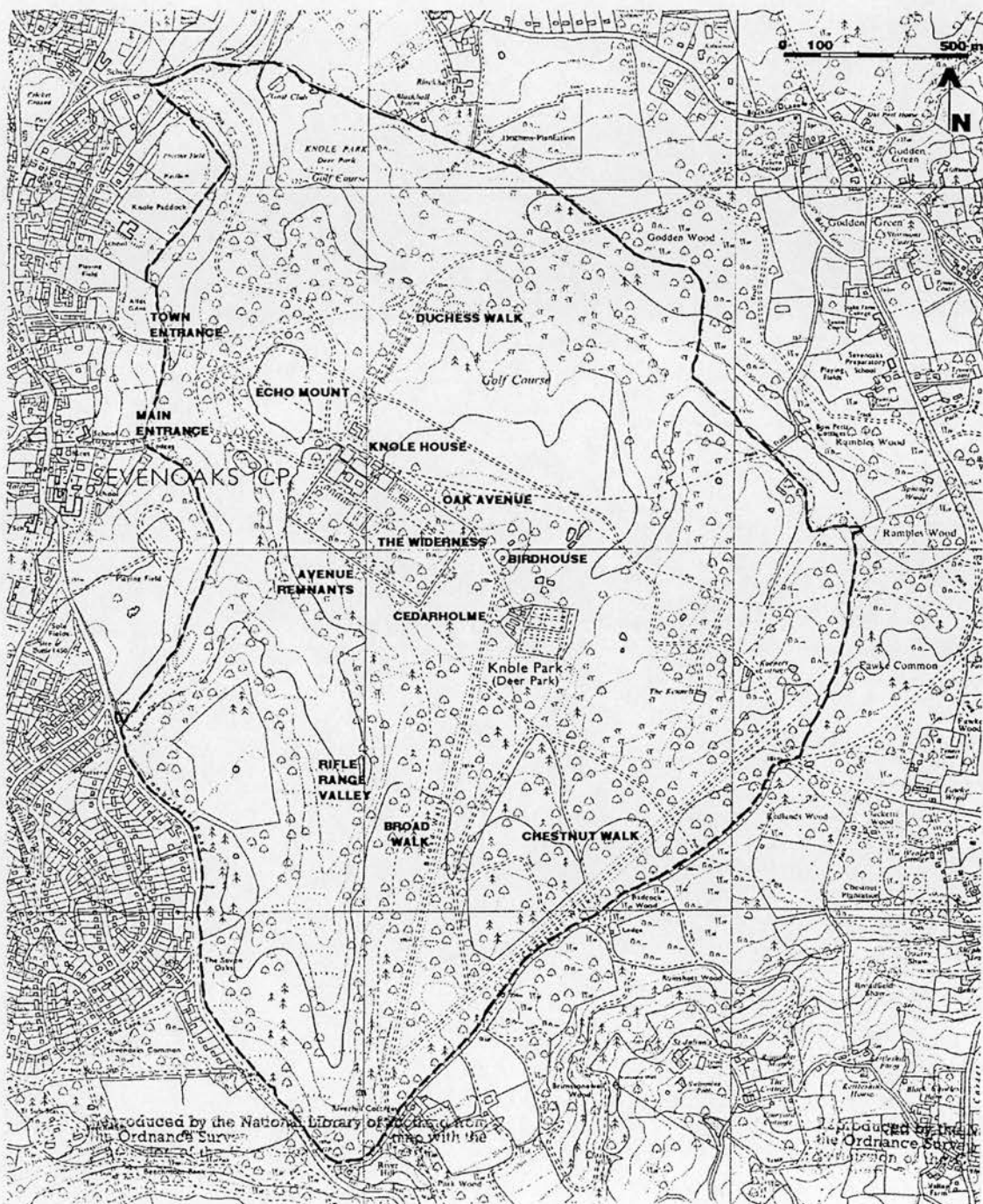
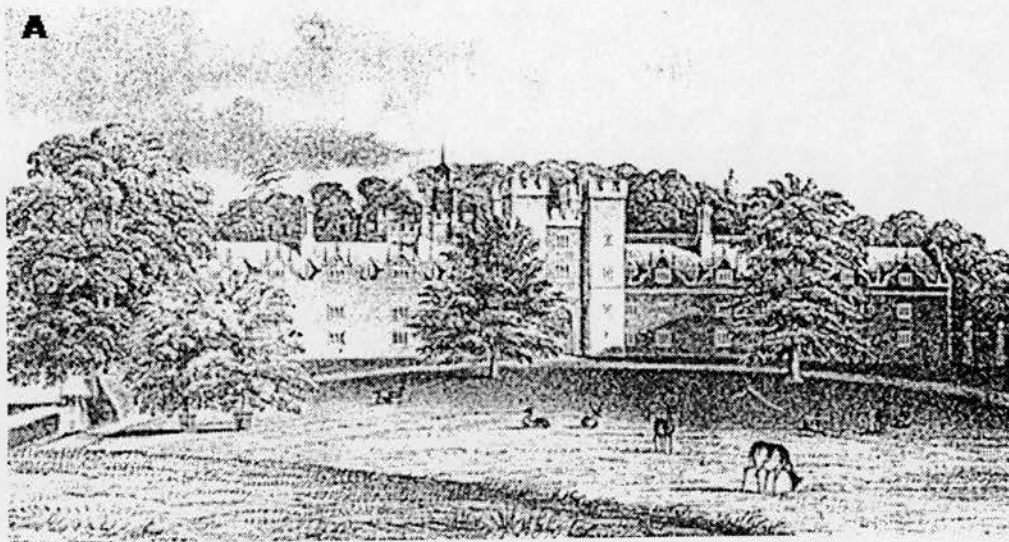


Fig. 4.2: The Present Layout of Knole Park and its Surroundings. (Reproduced from Ordnance Survey of Great Britain, 1:10,000, Kent, Sheet TQ 55, SW - 1971, SE - 1987, NW - 1975, NE - 1984)

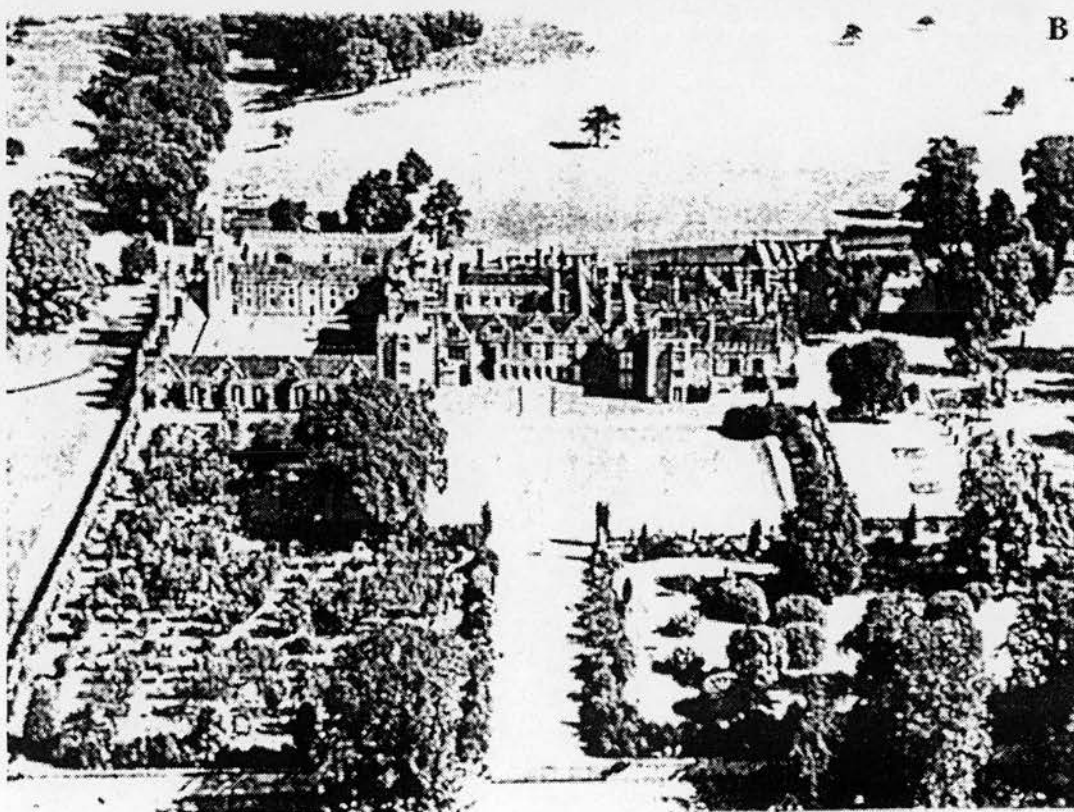




**Fig. 4.3:** A - Knole House West Front Reproduced from the Lithograph, Knole by Rawlins J. J. and Martin R., 1838. (Courtesy: Sevenoaks Library Archives)

B - Knole House and Surrounding Area, Aerial View from South-west in the 1970's. (Reproduced from Talbot White J. *op. cit.*, p.26)

A



**Fig. 4.4:** A - Knole House Viewed from the North-east and B - Aerial view of the South-west Front of the House and Formal Part of the Walled Garden. (Reproduced from Sackville-West V. (1947) *op. cit.*, p.xiii and p.13)

characteristic of the house enclosures of Tudor Period. The part of the garden that immediately surrounds the house remains rigidly formal in layout, while the much larger easterly portion known as The Wilderness, with its densely planted collection of trees trodden by bluebell and daffodil fringed network of paths, evokes a layout of the Labyrinthine-wilderness concept<sup>1</sup> of the Tudor period<sup>2</sup>.

The enclosure of the house and garden occupies a commanding position on a double plateau which rises from the Echo Mount in the west to the Birdhouse knoll in the east (fig.4.2). This broad, central plateau is embraced within a forked valley system that gives the park its strong spatial organisation. The sinuous, yet, often broad and flat-floored valleys smoothly mould the park surface into a series of additional plateaux. The resulting land-form is richly complex and undulating (fig.4.5).

The land surface gradually rises from 106 m OD at the northern end to 212 m OD at the southern end, where it touches the crest of a ragstone ridge. This marks the linear, geological boundary between the Wealden and the Lower Greensand. The park lies on the northward dip-slope of the latter geological strata (fig.4.6). The underlying rocks chiefly are Hythe beds, a series of sandstone containing irregular courses of hard, gritty limestone known as Kentish rag or ragstone. Other rocks of similar origin, Sandgate and Folkestone beds, form the plateaux, with superficial head deposits overlying them towards the higher ground in the south. These rocks, rarely seen in outcrop at Knole Park, produce a variety of soils ranging from shallow, well-drained, acidic soils over sandstone to irregular patches of more loamy or clayey compositions with higher pH values<sup>3</sup>.

The park landscape is unrestrained and informal in character, the only elements of formality being the five avenues of trees: two parallel to the walled garden, Duchess Walk north of the house and the two long avenues, Broad Walk and Chestnut Walk in the south (fig.4.2). The Birdhouse and ruins, built on an artificially raised knoll on the axis of the Broad Walk, is part of the formal structure of the layout (fig.4.7). The avenues however appear to harmonise with the severity of the park's character, due to

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<sup>1</sup>Bacon F. *Essays*, Ed.: Rhys E., J. M. Dent & Sons Ltd., 1906, London, p.141; and Talbot White J. *op. cit.*, p.170

<sup>2</sup>Restoration of the walled garden, as the second phase of the park restoration scheme, was initiated some six months after the field investigations for the present case study were completed, and therefore the enclosure had to be excluded from the case study. Similarly, other residential enclosures of the park were omitted from the study.

<sup>3</sup>Based on local geomorphological information available in cartographic form and ecological and soil surveys carried out at Knole park during 1987-1988.



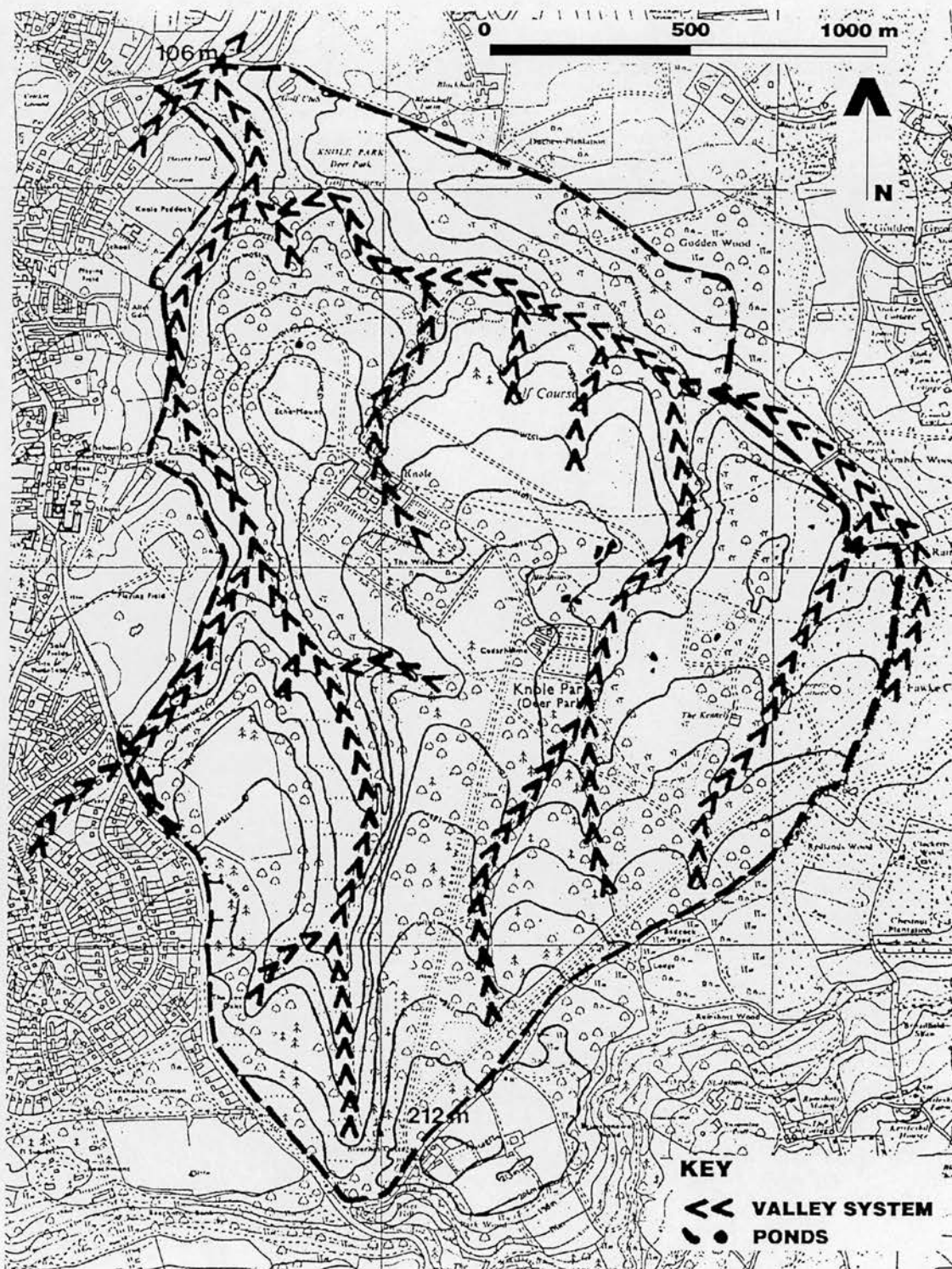
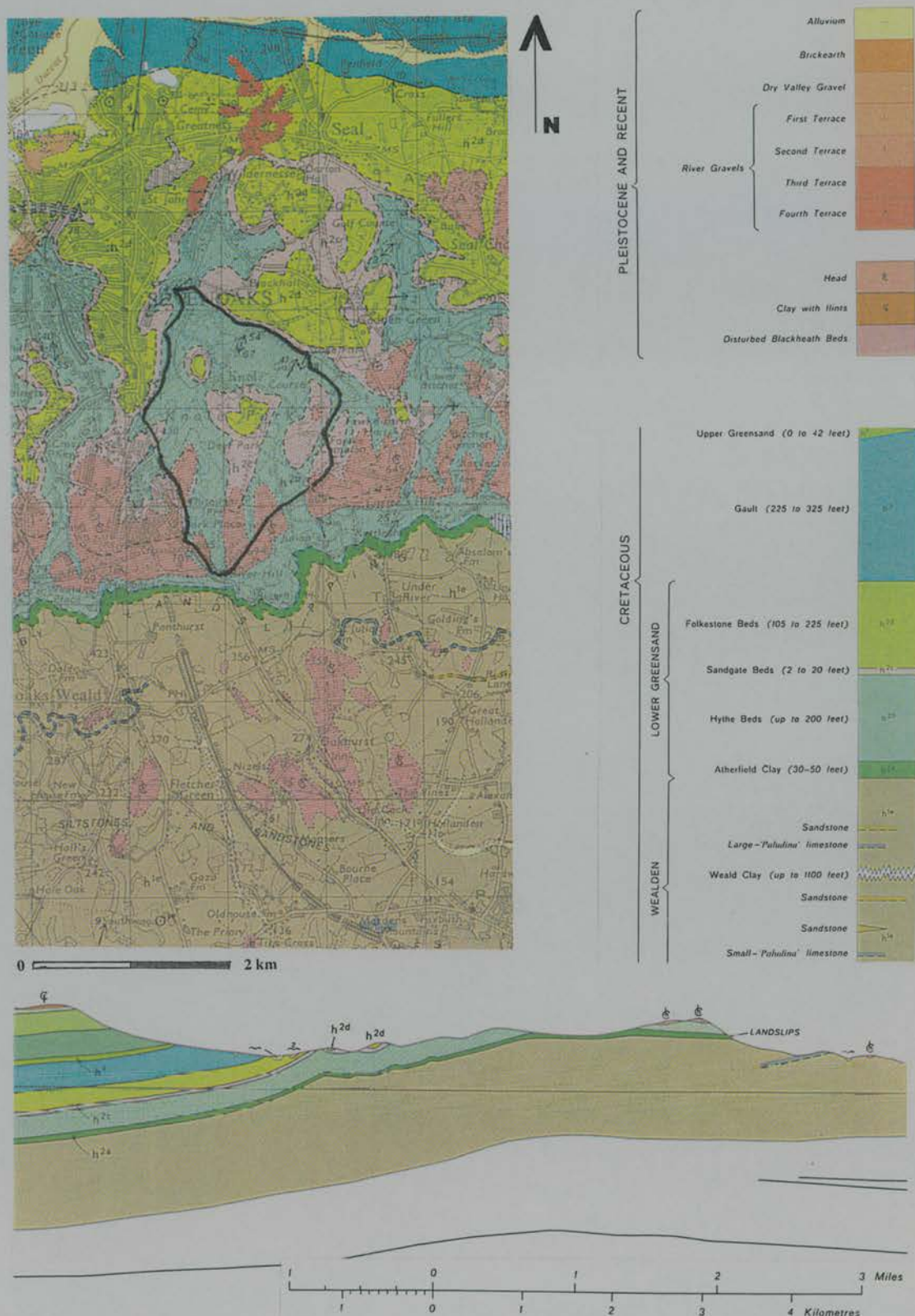


Fig. 4.5: Topography of Knole Park. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



**Fig. 4.6:** Geological Formation of the Locality of Knole Park. (Reproduced from Geological Survey of Great Britain (England and Wales), Solid and Drift, Sheet 287, 1:50,000, 1971)





**Fig. 4.7:**    **A** - Broad Walk, Largely Unaffected Northern Portion Four Years After the Storm, with Some New planting Already Carried Out. The Avenue Focuses on to the Birdhouse in the North.

**B** - Birdhouse and the Ruins Viewed from the North in the 1970's.  
 (Reproduced from Talbot White J. *op. cit.*, p.29)



their irregular, often gappy, form and the wide, allée like way in which they have been set (fig.4.7 and 4.8). The central plateau is a wide open grassland, punctuated by specimen trees and a few clumps. Beyond the edge of the plateau, the landscape dissolves into complex land-forms of open, grassy valleys edged by pasture woodland in the north to more dense woodland on high ground in the south.

Knole is a well known and much visited park. It is perhaps most familiar today as the family home of Vita Sackville-West, the famous gardener and author. Her life-long passion for the park, a tragic passion in that she was denied her inheritance by virtue of her gender<sup>1</sup>, is said to have provided the inspirational background for the novel 'Orlando' by Virginia Woolf<sup>2</sup>. The park receives an estimated 500,000 visitors a year<sup>3</sup>, of which about 90,000 come to see the house. The principal rooms of the house have been open to the public as showrooms, on a seasonal basis since the eighteenth century<sup>4</sup>. From 1946, the house, the walled garden and the main entrance area to the park have been under the guardianship of the National Trust<sup>5</sup> (fig.4.9). The Sackville family still occupies a private part of the house and all but one of the lodges in the park. Some 100,000 visitors, including participants of the events organised by the National Trust, arrive by car. The access by car is through the main entrance opposite the Sevenoaks church on the high street. There is no specifically designed parking facility in the park. Instead, the cars are parked in an irregular and unlimited sprawl, west of the southern end of the Duchess Walk (fig.4.9). The remaining 400,000 visitors are primarily the residents of Sevenoaks district, who freely use the park for a variety of recreational activities, from walking, jogging, riding or picnicking to school children's outdoor exercises. An eighteen hole golf course, held leasehold since 1923, occupies the north-eastern side of the park, with the club house set at the north end. The local golf club, formed of 900 members, renewed its lease for 20 years in 1987. Just north of the house, on the plateau is a cricket ground used on a more informal basis (fig.4.9).

The park *"has been open to the public at least since the 1800's, if not since the beginning of its history."*<sup>6</sup> Ward's opening comments in his essay, 'The Making of

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<sup>1</sup>This is yet another, much written about, legend associated with Knole Park, and yet hard to prove from reliable literature; included here not as a fact, but merely to emphasise the relationship of Vita Sackville-West and Virginia Woolf with the park that has produced some important literature from which this case study draws much information.

<sup>2</sup>Campbell Dixon A. *op. cit.*

<sup>3</sup>de Haen V. *op. cit.*, p.22

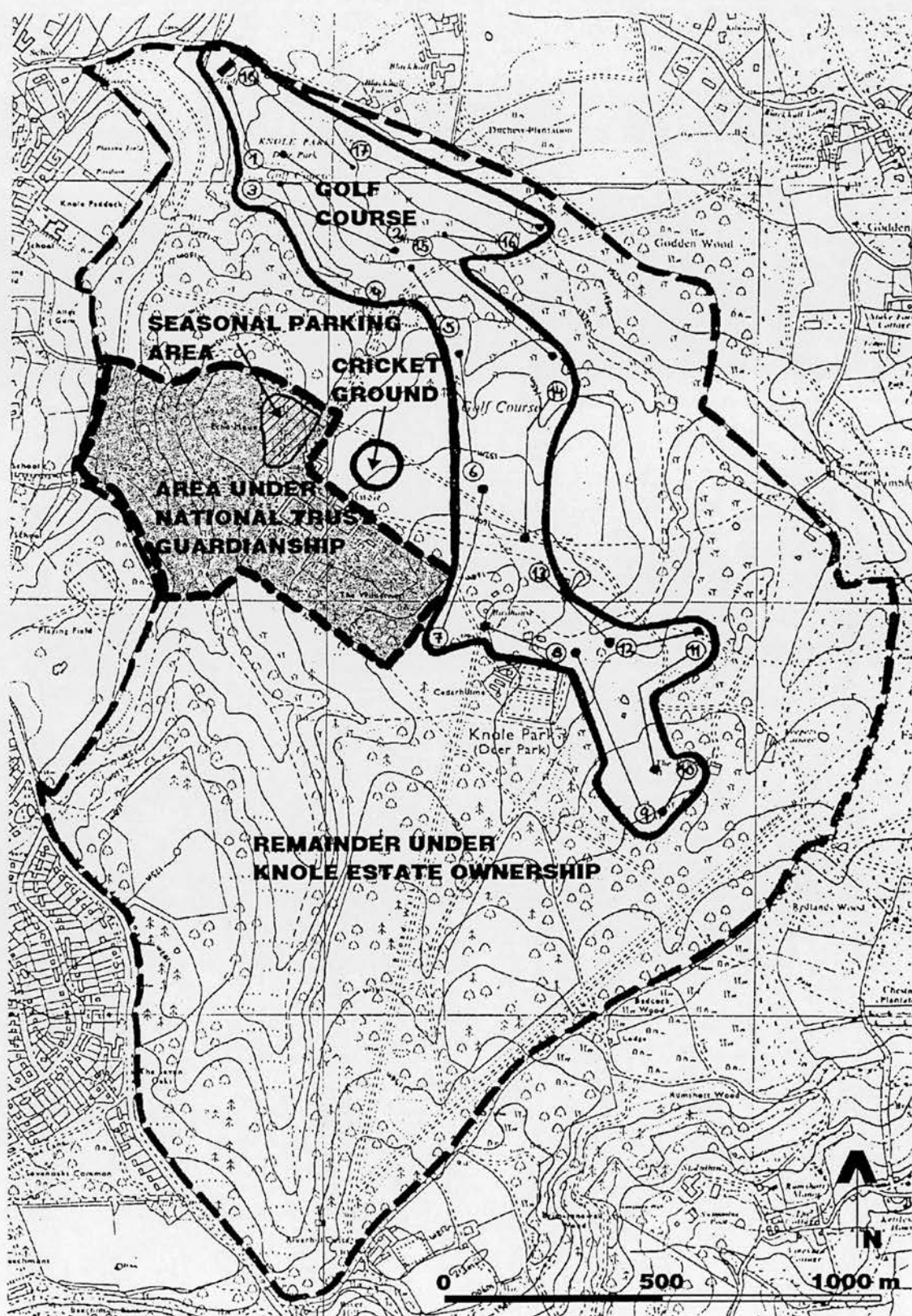
<sup>4</sup>Campbell Dixon A. *op. cit.*; and Brady J. H. **The Visitor's Guide to Knole**, James Payne, 1839, Sevenoaks, p.81

<sup>5</sup>Sackville-West V. (1971) *op. cit.*, p.15

<sup>6</sup>de Haen V. *op. cit.*, p.19



**Fig. 4.8:**    **A** - Chestnut Walk Four Years After the Storm with some New Planting Already in Place.  
                   **B** - Duchess Walk in the 1970's. (Reproduced from Talbot White J. *op. cit.*, p.29)





Knole Park' may be considered testimony to this historically rare, or perhaps unique, public accessibility to the park:

*"There is a common tendency in these democratic times - if they really are democratic - to suppose that all parks were stolen from the public by rapacious barons in armour or by their more subtle descendants in Georgian wigs. With such proceedings the makers of Knole Park had little to do..."<sup>1</sup>.*

By tradition, members of the public are allowed to wander freely through the park, except on the golf course and the few enclosures around inhabited houses. The park is accessible on foot at any time of the day through any of the 12 peripheral gates. Between these gates are numerous statutory and other footpaths, some of which connecting Sevenoaks with other localities of the district have been continuously used as public rights of way throughout the park's history (fig.4.10). The continuous tradition of liberal access to the people of Sevenoaks and the present multi-functional and informal character of the park demonstrate its smooth transition from a feudal estate to a modern recreational park<sup>2</sup>. What makes Knole Park archaeologically significant or even unique is that it has, on the one hand, gradually transformed to accommodate the increasing and changing local demand as a public open space, while on the other, maintaining its integrity as an ancient landscape of national importance.

Equally important though is the considerable influence the park has had on the historic development of the local landscape, as a result of its strategic proximity to the town of Sevenoaks. The town and the park have always been closely linked to one another, in their early history as the dominant, landholder employing many townsfolk and the small market place that made the town, to the present-day reversal of roles as the dominant residential town and its obligatory provider of recreational space.

As late as the mid nineteenth century, Sevenoaks was still a tiny market town, formed of two streets of houses and its market place less than half a kilometre in total length, and was insignificant in size set against the massive park which had already acquired its present form, some 3 km in length from north to south (fig.4.11). Within the last 130 years, the town has developed to a spread some 20 times the size of its original core area (fig.4.1). Sevenoaks has flourished as a residential town due to its proximity to London, with easy access to the city by train or motorway for the well to do commuters who make up much of the local population. It is a pleasant town of

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<sup>1</sup>Ward G. **Sevenoaks Essays** (1931), 2nd Ed., Ashgrove Press, 1980, Sevenoaks, p.153

<sup>2</sup>de Haen V. *op. cit.*, p.22

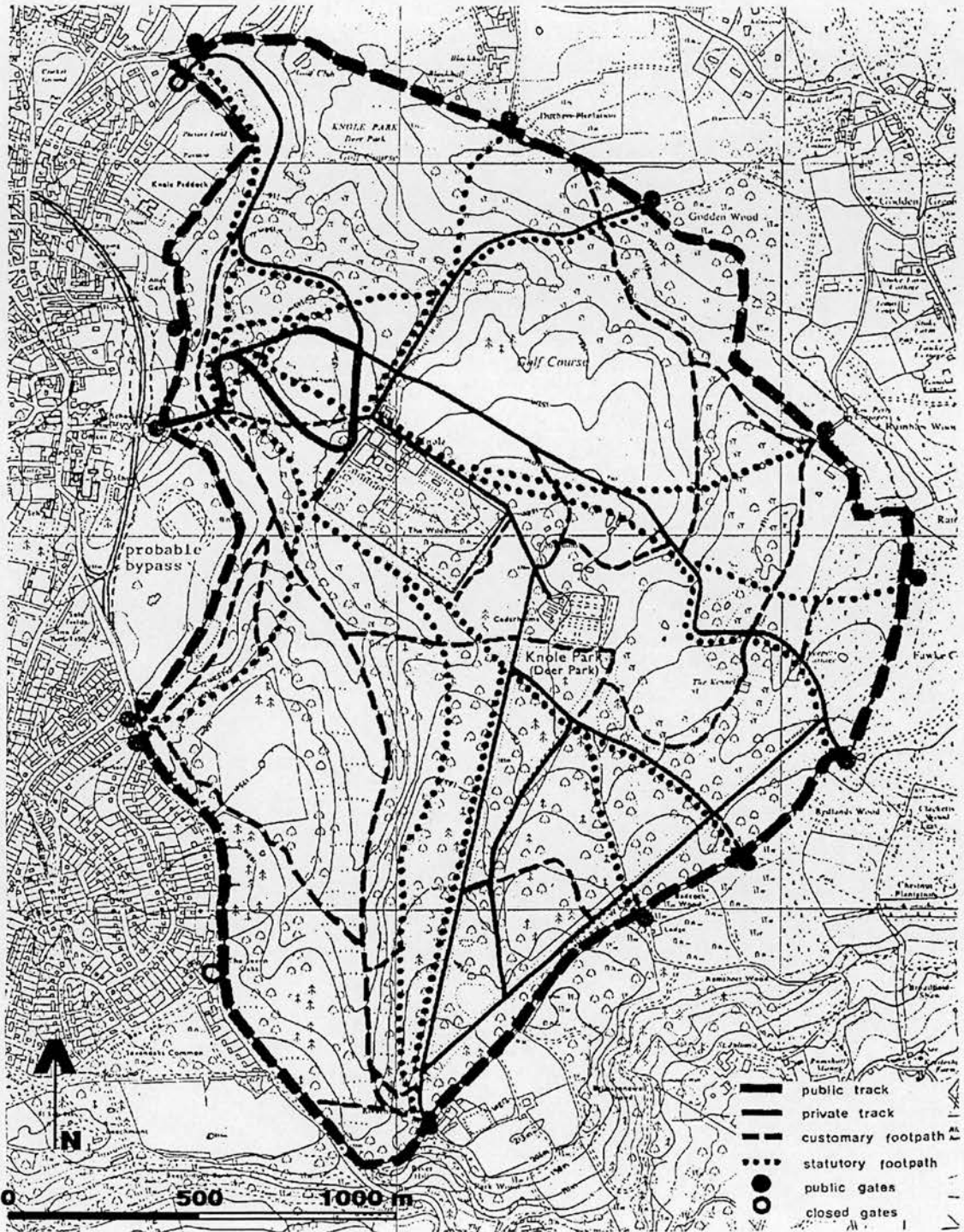


Fig. 4.10: Access to the Park and Circulation. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

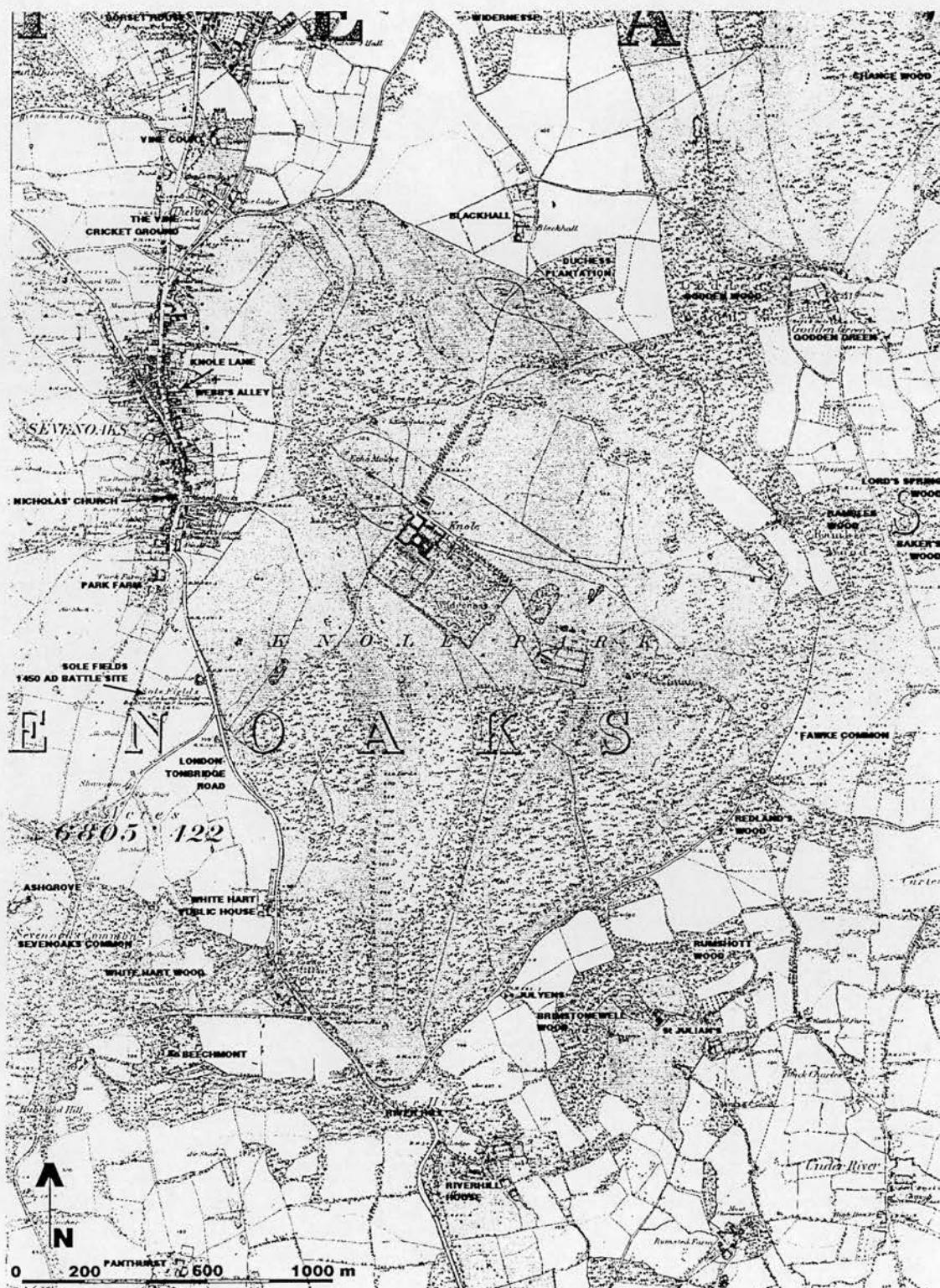


Fig. 4.11: Knole Park and its Locality in the Mid Nineteenth Century. (Reproduced from Ordnance Survey of Great Britain, 1st Edition, 1: 10,560, 1871, Kent Sheet 40)



largely detached or semi-detached housing with gardens, and the old town preserved as a tourist attraction.

Set amidst the countryside, it is a highly desirable place to live and is most likely to spread further. The sprawl of the town so far has taken a more northerly direction. The southward spread beyond the old town has been much more diffused in comparison, although most of the farm land of the eighteenth century has been taken by the recent housing. It is clear that the existence of Knole Park has decidedly limited easterly development of the town. The spread has neatly followed the western boundary of the park, and beyond its northern boundary eastwards to engulf much of the old features including almost all of the Wildernessee Estate<sup>1</sup>, until the village of Seal has virtually merged with the town. Many old elements, such as woods and farm land, east and south of the park remain the same, except that many woodlands have become coniferous with limited public access, and the traditional uses of the greens and commons have changed. The park meanwhile has remained in its eighteenth century form unyielding to the development of the town and therefore has preserved a sizeable and accessible open space for a fast expanding town. Ward's statement early this century is a better description of the significant role the park has played:

*"But what ever has been lost, at least the house and the park remain. When one remembers what the democracy of Seal made of its village green, now a close set mass of houses, one can only rejoice that Julian's common escaped a like fate by preservation in the park."*<sup>2</sup>

## 4.2 The Restoration Scheme

Knole Park's recent restoration scheme was the result of the devastation inflicted on the park landscape by the ferocious storm of 16th October 1987. The storm, of a force unseen in this country for centuries, brought about widespread damage to the property and landscape of South-East England, an area noted for

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<sup>1</sup>Wildernessee appears as a park enclosure, the enclosure nearest to Knole, in Camden's Britannia, 1695 (fig.4.14). By the early eighteenth century, it had established as the Wildernessee Estate, belonging to the Marquess of Camden, which included some property originally owned by the Manor of Knole (Brady J. H. *op. cit.*, p.69; and Phillips C. J. *op. cit.*, vol.I, pp.209-249) (Fig.4.18 and 4.19). The park is recorded to have been 'disparked' in 1840, and the estate at present is taken partly by a golf-course and partly, expensive housing (Shirley E. P. *op. cit.*, pp.70-71; and Talbot White J. *op. cit.*, p.31).

<sup>2</sup>Ward G. *op. cit.*, p.156; Ward here refers to developments in his time, in particular to that which utilised the village green of Seal, a village north of Knole Park, now virtually merged with Sevenoaks town, and in general to those that changed the land uses of many commons and greens which existed earlier (Fig.4.1 and 4.18). In 1724, 93 acres of Julian's common was added to the park (Ward G. *op. cit.*, p.154). The remainder of the common had changed to privately owned farm land by the nineteenth century (Fig.4.11).

numerous woodlands, parks and gardens of historic value<sup>1</sup>. Knole Park suffered severe damage to its precious, centuries old vegetation. *"It has been estimated that 15,000 tonnes of timber fell that night in Knole Park. This is some 23,000 m, enough to build a timber sleepered railway line from London to Shrewsbury"*<sup>2</sup> (fig.4.12). The dense woodlands and plantations on southern high grounds of the park were almost entirely destroyed, leaving much of the area denuded and causing widespread damage to the soils. The damage caused to the pasture woodlands on low-lying areas in the north was less severe in comparison. The avenues and some very old specimen trees survived the storm remarkably well, except for the beeches at the southern end of the Broad Walk. Some 70% of the trees at Knole were destroyed by the storm<sup>3</sup> (fig.4.13). The subsequent clearing operations, incurring great and unexpected cost to the park owners, took nearly two years to complete. The clearing work using heavy machinery compounded the soil damage in many areas<sup>4</sup>.

Soon after the storm, the trustees to the estate instructed their managing agents, Messrs. Strutt & Parker initially to see to the clearance of fallen and damaged wood and then to develop a suitable restoration scheme. The agents were fully aware of the complexity of the task involved in restoring an ancient landscape of such wide-ranging and often conflicting interests and were convinced that specialist advice was needed<sup>5</sup>. Having completed about a year of clearing work by the latter part of 1988, the agents assembled a team of consultants, each individual specialist of the team commissioned to cover an area of specific interest (Table 4.1). Messrs. Colvin & Moggridge were appointed as landscape architects in charge of landscape-technical co-ordination. Their brief was to develop a restoration scheme which would be capable of achieving a sensible balance between the conservation interest and the needs and views of various parties involved, while being a workable solution, and most crucially, affordable to the owners who were to bear a significant share of the cost, depending on the level of public grant support the scheme could attract<sup>6</sup> (Table 4.2).

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<sup>1</sup>de Haen V. *op. cit.*, p.19

<sup>2</sup>Quoted from *The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate*, Colvin & Moggridge, July 1989.

<sup>3</sup>de Haen V. *op. cit.*, p.19

<sup>4</sup>de Haen V. *op. cit.*, p.19

<sup>5</sup>Based on the foreword by Messrs. Strutt & Parker to *The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate*, Colvin & Moggridge, July 1989.

<sup>6</sup>*Ibid.*

**Table 4.1: The Team of Consultants Involved in Knole Park Restoration Scheme.**

Specialist	Role
J. H. Anderson and T. S. Richardson (Messrs. Strutt & Parker)	Overall co-ordination and finance
Hal Moggridge, (Messrs. Colvin & Moggridge)	Landscape / technical co-ordination
M. Crichton Maitland, (Messrs. Crichton Maitland & Co.)	Forestry
R. Prior	Deer management
Dr. O. L. Gilbert, (Environmental Consultancy, University of Sheffield)	Conservation of flora and fauna

The initial task of the team was to evaluate the park landscape for its archaeological, ecological and land use values. The landscape architects carried out an exhaustive investigation into the historical development of the park, using all the available sources of information. The deer consultant further supplemented the historical research by a literature survey on the development of Knole Park as a deer park. A comprehensive ecological survey was carried out by the environmental consultants on both the flora and fauna of the park.

### 4.3 The Park's Historical Development and Archaeological Value

A reasonably clear picture of the park's historical development emerged from the research by the landscape architects (Appendix 4.1). Much of the information, especially of the park's early history, was derived from descriptive documentary sources such as guides or local history essays, some of which were specific to the park and the Sackville family. Hardly any early estate plans, deeds or records had survived, and old records relating to land use changes in the locality were rather scant<sup>1</sup>. Yet, Phillips' voluminous 'History of the Sackville Family', the culmination of

<sup>1</sup>The scarcity of early documents relating to Knole Estate has been attributed to a large fire at Knole House in 1623, the Great Fire of London which destroyed the Dorset House in 1666 and the damage caused to Knole Muniments during the civil war, 1642-43 (Phillips C. J. *op. cit.*, vol.I, p.xi; and Sackville-West V. (1947) *op. cit.*, p.6 and p.82).



**Table 4.2: List of the Interest-groups and Statutory Bodies Involved in Knole Park Restoration Scheme, their Main Interests and Conflicting Needs<sup>1</sup>**

Interest Party / Body	Main Interests	Conflicts Of Interests
Sackville family, owners	Primary users of the park for last 400 years and keen to preserve the historic value of the park. Responsible for the largest share of the cost of restoration and subsequent maintenance. Interested in sustaining the park by semi-commercial forestry and deer management.	Financial necessities conflicting with conservation interests, depending on the level of public grant support.
The National Trust	Guardians of the house enclosure and its frontage; responsible for its conservation.	Any proposals for this area would be subject to their approval.
The golf club	Leaseholders of the golf course, keen to preserve its quality.	Increasing public access to the area disruptive to play.
The public	Archaeological as well as amenity value of the park for passive and active recreation.	Conflicting with deer management and golf-course, and public safety requirement.
Local authorities	Archaeological and amenity value of the park as a public recreational facility and part of the local heritage.	Approval for public financial support.
English Heritage	Archaeological value of the park.	Approval for public financial support.
Nature Conservancy Council	Ecological value of the park.	Approval for public financial support.
The Forestry Commission	Forestry interest of the park.	Approval for public financial grants.

a lengthy and exhaustive investigation consulting a vast range of historic documents<sup>2</sup>, provided a clear understanding of the development of the manorial estate of Knole, as

<sup>1</sup>Based on the foreword by Messrs. Strutt & Parker to The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate, Colvin & Moggridge, July 1989.

<sup>2</sup>Phillips C. J. *op. cit.*, vol. I and II; Phillips' research sources include manuscripts at Lambeth Palace, The Records Office, The British Museum, Diocesan Library at Canterbury and

well as the history of the park and the house. Less detailed, nevertheless poetically insightful, Sackville-West's two compilations<sup>1</sup>, 'Knole and the Sackvilles' and 'Knole', both facilitated the appreciation of the nostalgic value of the park to the Sackville family. Ward, analysing available local historical records, had given a fairly reliable account of the park's development in terms of land intake into the park in his essay, 'The Making of Knole Park'<sup>2</sup>; and the Kent county archives held at Sevenoaks, Tonbridge and Maidstone libraries provided papers, original county maps and engravings which helped fill the gaps in written history. Oral history sources of the locality helped dating and understanding the significance of various physical features of the park as well as unrecorded past uses and events. The research showed that the park's past development has been gradual and accumulative, a rare case of continuity with absence of dramatic change<sup>3</sup>.

The earliest reference to Knole as a place appears in Lambeth Palace papers dating back to late thirteenth century<sup>4</sup>. The name Knole, variously inscribed in old maps and documents earlier as Knoll, then as Knowl and later as Knowle, is believed to have derived from the central knoll on which the house enclosure stands<sup>5</sup> (fig.4.14, 4.18 and 4.19). The records are consistent that Knole was first emparked in 1456 by Thomas Bouchier, the then Archbishop of Canterbury. The initial enclosure consisted of an existing manor and its land the archbishop purchased from the family of Say and Seal. It would have been less than a third of the present extent of the park and, according to Ward's account<sup>6</sup>, occupied the central knoll and the land to the south of it. Extending on the earlier manor, the archbishop built the great Tudor house to its present size and enlarged the park, adding land either purchased or exchanged from surrounding properties, during his time up to 1486. In the hands of his successors, Morton, Deane, Warham and Cranmer, the park would have been considerably enlarged, but no records exist to give the details of land intake in the 52 years of their occupation (Appendix 4.1).

Little is known about the nature of the park or its uses during this early period of clerical ownership. However, references to Knole in some twentieth century

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contents of the Muniments Room at Knole; consults Pipe Rolls, Charter Rolls, Patent Rolls, Close Rolls, Feet of Fines and the Reports of the Historical Manuscripts Commission.

<sup>1</sup>Sackville-West V. *op. cit.*

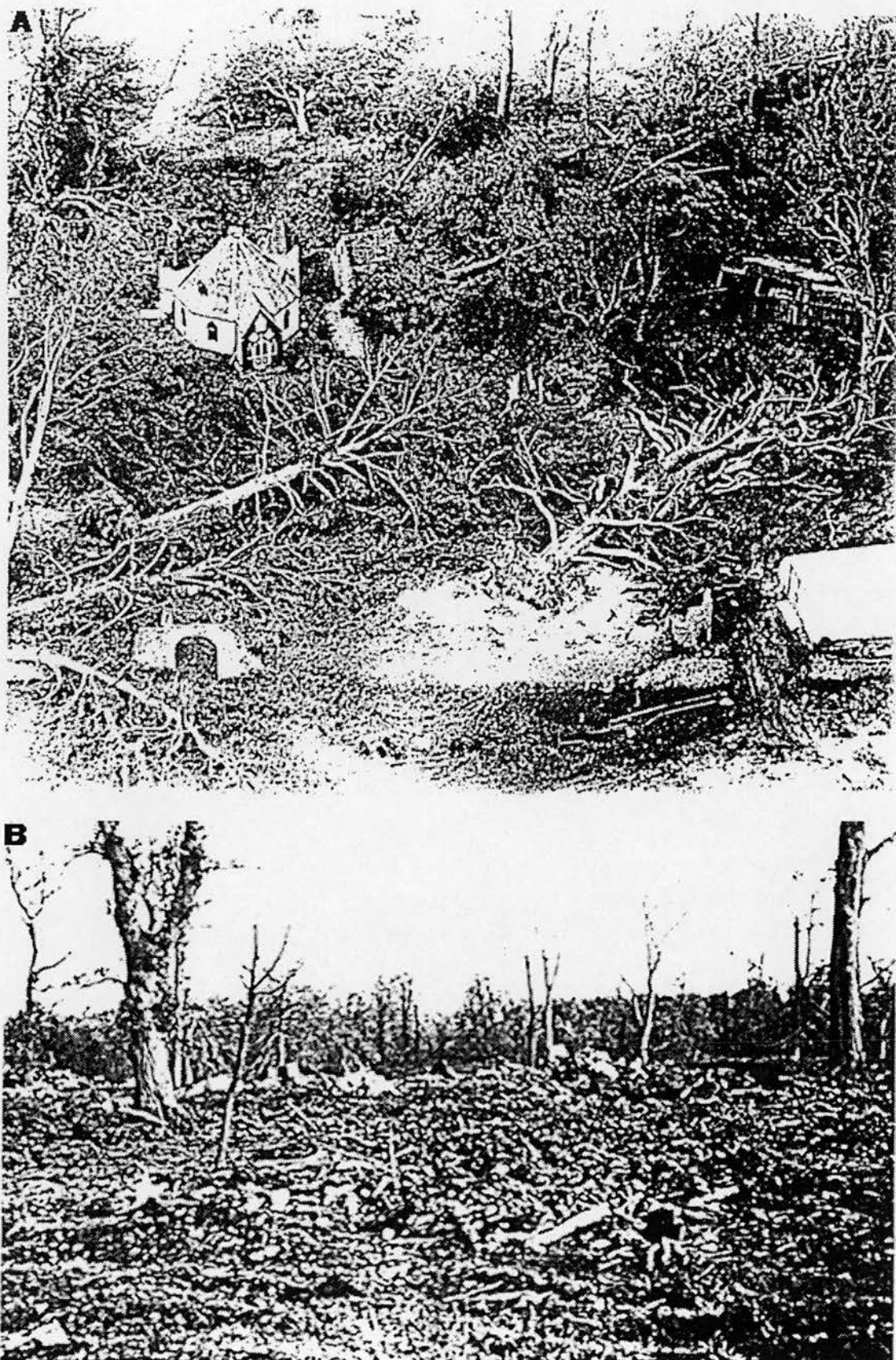
<sup>2</sup>Ward G. *op. cit.*, pp.153-156

<sup>3</sup>de Haen V. *op. cit.*, p.21

<sup>4</sup>Phillips C. J. *op. cit.*, vol.II, p.382; and Sackville-West (1971) *op. cit.*, p.5

<sup>5</sup>Lambarde W. *op. cit.*, p.463; and Sackville-West (1971) *op. cit.*, p.5

<sup>6</sup>Ward G. *op. cit.*, p.153



**Fig. 4.12:** Storm Damage to the Vegetation of Knole Park; **A** - area around Birdhouse on October the 17th, 1987 and **B** - One of the most affected areas on the high grounds at the southern end.



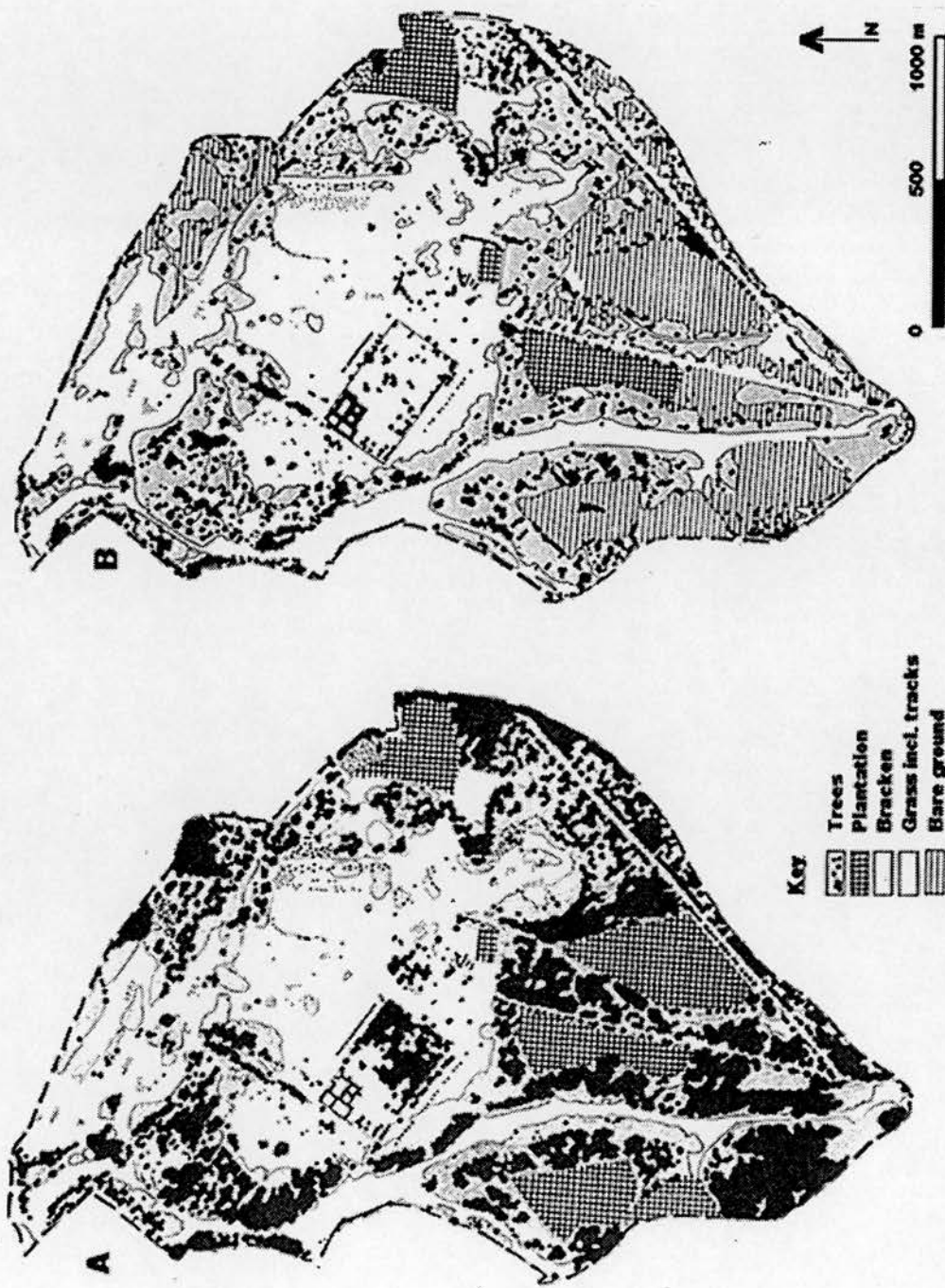


Fig 4.13:  
Tree Cover at Knole Park Before-A and After-B the Storm of 16th October 1987. (Reproduced with  
Kind Permission from Messrs. Colvin & Moggridge)

literature on deer parks all suggest that the park would have served the purpose of a deer park since its initial emparkment and the fallow deer were descendants of those originally enclosed<sup>1</sup>. While these assertions may, to a greater or lesser extent, be conjectural, some strong support for their credibility comes from the well documented evidence that the primary purpose of the parks created during the medieval period in Britain was the husbandry of deer and other animals for meat<sup>2</sup>; the medieval meaning of the word park was an enclosure for semi-wild animals, mainly an utilitarian enterprise producing venison<sup>3</sup>.

The origin of the tradition of deer parks in Britain has been traced back to the Norman interest in deer husbandry. Deer parks were a familiar part of the landscape of early medieval England, particularly following the Norman conquest. The dramatic increase in their numbers during the twelfth and thirteenth centuries has been attributed to the introduction of fallow deer which were easier to manage within an enclosed space than their native counterparts<sup>4</sup>. Since the thirteenth century royal licences were required to empark an area or to enlarge an existing park, and this led to the systematic recording of parks<sup>5</sup>. Some 3000 parks have been estimated to have existed in England by the fourteenth century<sup>6</sup>. These early parks were usually created by enclosing a sparsely wooded area by a wooden fence erected on the bank of earth excavated from a ditch dug either inside or outside the park pale. 'Deer leaps' were included into the fence in a manner in which the deer were encouraged to jump into the park but discouraged to leap out. In other cases, the deer were herded into an area and captured subsequently within an enclosure<sup>7</sup>. The parks at this time served the main purpose of supplying venison for the winter and, to a lesser extent, wood and timber. Hunting deer for recreation was occasional and limited to the larger parks. Throughout the early medieval period the parks continued their earlier functions as sources of

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<sup>1</sup>Whitehead presumes that the fallow deer date from the time of first enclosure, quoting Whitaker for the date of enclosure as fifteenth century (Whitehead G. K. **Deer and Their Management in the Deer Parks of Great Britain and Ireland**, Country Life Ltd., 1950, London, p.245; and Whitaker J. **A Descriptive List of the Deer-Parks and Paddocks of England**, Ballantyne Hanson & Co. Ltd., 1892, London, pp.80-81). Hingston is more emphatic that "*the park was first enclosed in 1456*" and "*the fallow are descendants of those originally enclosed.*" (Hingston F. (Ed.) **Deer Parks and Deer of Great Britain**, Sporting & Leisure Press, 1988, Buckingham, p.68).

<sup>2</sup>Rackham O. **Ancient Woodland: Its History, Vegetation and Uses in England**, Edward Arnold, 1980, London, pp.193-197

<sup>3</sup>Rackham O. **Trees and Woodland in the British Landscape**, J. M. Dent & Sons Ltd., 1976, London, pp.142-148

<sup>4</sup>Rackham O. (1986). *op. cit.*, pp.122-123

<sup>5</sup>Darvill T. C. (1987b) *op. cit.*, p.133

<sup>6</sup>Rackham O. (1980) *op. cit.*, p.191

<sup>7</sup>Prior R. *op. cit.*, pp.70-72

meat, wood and timber. Deer were the most common animal reared, while swine, cattle and rabbits were also frequently kept<sup>1</sup>.

At the beginning of the Tudor period however, deer parks had entered a period of transformation where their earlier role of sustenance was gradually challenged by amenity and recreational functions. Deer Parks were a precarious enterprise<sup>2</sup> that seldom appears to have been self-sustaining<sup>3</sup>. Venison was not an ordinary economic product; it was rather a special delicacy used for feasts or honouring guests and was considered beyond price. The income the parks could generate from sale of other types of meat, wood, timber and cattle grazing could hardly have been sufficient to sustain them. The maintenance of a deer park therefore required considerable wealth and proper attention from the owner. Deer parks in fact were a status symbol that, like any other fashion, descended the social scale from the crown to the minor gentry; while almost all who could afford a park had one, the more affluent and the powerful often had several parks. It was mostly the case that a park belonged to an absentee. Many such deer parks fell out of use due to neglect caused by absentee owners. In addition, the encumbrance of keeping a park made it vulnerable to changes in wealth and, in some cases, changes in socio-political status of the owner, and as such a large number of medieval parks did not last long. By the sixteenth century the original use of the deer park was generally in decline and most of the parks that remained were gradually transformed to help provide an ornamental setting for the great houses and mansions that were being built<sup>4</sup>, once again, the trend set at the top of the social order<sup>5</sup>. In the opulence of these new parklands, the deer, where they continued to remain, gradually became a complementary, decorative element symbolic of sport and leisure rather than an industry<sup>6</sup>.

The inception of Knole Park preceded the Tudor surge towards parkland ornamentation by, at least, three quarters of a century. It is possible to assume therefore that the park in its early stage would have had an austere and functional character akin to the nature of the deer park traditional in the early medieval period. As in the case of a majority of the deer parks of the time, it would have been largely or solely composed of open pasture woodland, grazed by the deer enclosed within a wooden park pale. The ecological survey carried out at Knole Park in 1988 identified

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<sup>1</sup>Darvill T. C. (1987b) *op. cit.*, pp.133-135

<sup>2</sup>Rackham O. (1986) *op. cit.*, p.126

<sup>3</sup>Talbot White J. *op. cit.*, p.16

<sup>4</sup>Rackham O. (1986) *op. cit.*, pp.126-129

<sup>5</sup>Darvill T. C. (1987b) *op. cit.*, p.136

<sup>6</sup>Prior R. *op. cit.*, p.74



some old oak pollards, which were concentrated around the house enclosure, as remnants of a pasture woodland probably descending from an originally enclosed *wildwood*. The present composition of the central area, except for the few later additions of avenues and specimen trees, may be considered as indicative of a plain, functional tradition of pasture woodland management continued from the early beginnings of the park, and in its simplicity rather at odds with the grandeur of the house Archbishop Bouchier was building at the time. It is possible that the archbishop would have placed some emphasis on the layout immediately surrounding the house to provide a setting in scale with its elaborate design. Yet, there is no physical evidence in this area that may be traced back to the park's early history and used to suggest any conscious effort of ornamentation. What appears most likely is that the house would have stood in a form of a grassy opening, in the midst of pasture woodland perhaps more dense than what exists today. There is no evidence of a garden existing next to the house at this time; as in other deer parks of the period, the house would have been enclosed by some form of a fence to ward off the animals. An official document from the office of park keeper in 1530 records that swine were kept in addition to the deer (Appendix 4.1). The keeper (*parker*, as they were then known) would have been resident on site, as was the custom at the time<sup>1</sup>.

Despite the fact that the see of Canterbury included a considerable number of manors at the time<sup>2</sup>, the archbishops appear to have resided at Knole on a regular basis (Appendix 4.1). Surviving documents at Lambeth Palace show that Archbishops Bouchier, Morton, Warham and Cranmer had much favoured Knole as a residence and had spent considerable sums of money on the property. Knole, thus receiving affectionate attention from its frequently resident owners, continued its existence as a deer park through to the sixteenth century, whilst many deer parks of similar scale were being abandoned. Knole also appears to have received a notable patronage from the Tudor royalty: records show both Henry VII and Henry VIII visiting Knole on many occasions, and princess Mary residing several months there during Archbishop Cranmer's ownership. There is evidence to show that Henry VIII had developed a keen interest in the manor of Knole, at a time when the king is known to have been uneasy and openly envious about Archbishop Cranmer's wealth<sup>3</sup>. During the political upheavals of the Dissolution of the Monasteries, that took place between 1534 and 1538, something like a fifth of the land in the kingdom was transferred from the

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<sup>1</sup>Darvill T. C. (1987b) *op. cit.*, p.135

<sup>2</sup>Talbot White J. *op. cit.*, pp.14-15: Archbishops of Canterbury are recorded to have owned 34 manors in the thirteenth century.

<sup>3</sup>Phillips C. J. *op. cit.*, vol.II, p.393-395

holding of the church to that of the nobility and gentry<sup>1</sup>. Knole, having been one of the king's favourite manors, was taken into royal possession and added to the large number of seats Henry VIII chose to keep for himself.

The clerical ownership of the park thus ended in what appears to be an exchange of properties and lordships between the archbishop and the crown, that took place in July 1538. According to a hand-written account of the event of the exchange by Cranmer's then secretary, the archbishop had been rather reluctant to hand over Knole and had tried to persuade the king to spare the property, reasoning that "*it was too small an house for his majesty*"; the king, having then retorted that "*it standeth on a sound, perfect, wholesome ground; and if I should make abode here, as I do surely mind to do now and then, I will live at Knole*", went ahead inexorably, with the take-over<sup>2</sup>. State records show that Henry VIII took much interest in the park during the last eight years of his reign (Appendix 4.1): the park was enlarged by a minimum of 100 acres (40 ha) by various royal decrees and purchases. It is clear from the state accounts for 'making of the Kings Garden at Knole' that the private garden was first laid out at this time. It would, most certainly, have been a formal layout of exotic horticultural delights, typical of the gardens created during this time for many Kentish and other manors owned by Henry VIII<sup>3</sup>. What form of enclosure originally protected the garden is not known; it is recorded that the present garden wall was built nearly a half a century later. Since it is rather unlikely from the available evidence that the garden was enlarged between the time of its initial laying out and the time of wall building (Appendix 4.1), the original layout would have been equal in extent to what exists at present, and must have been the basic framework from which the present garden evolved. The earliest clear documentary evidence of the deer at the park also comes from this period, when, in 1539, the estate accounts record an examination of preserving the deer for the king against theft by local people (Appendix 4.1).

Following the death of Henry VIII in 1547, Knole Park appears to have been neglected for nearly two decades, when the manor passed through a rapid succession of uninterested owners (Appendix 4.1). Edward VI, who succeeded his father to the crown, never seem to have had any interest in Knole during his short reign. Instead, he assigned it to John Dudley, the earl of Warwick, as 'disparked' in July 1551<sup>4</sup>. The medieval term 'disparked' implied that a deer enclosure was abandoned and its pale

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<sup>1</sup>*Ibid.*, vol.I, p.129

<sup>2</sup>*Ibid.*, vol.II, pp.393-395

<sup>3</sup>Talbot White J. *op. cit.*, pp.17-18

<sup>4</sup>Phillips C. J. *op. cit.*, vol.II, pp.396-397

removed<sup>1</sup>, with the prior or consequent withdrawal of its royal licence to remain as a park. However, if Knole park was totally abandoned at this time is not quite clear from the available evidence: a document from around 1570 claims that the park was 'repaled' after it had been 'disparked'; yet, a survey of the property conducted nearly a decade earlier gives 446 acres to the park and 50 deer in it (Appendix 4.1). A herd of 50 deer, obviously, is far too small for the acreage recorded, and this may be taken as an indication that a neglected herd of deer, becoming less in number with time, continued to remain within the sanctuary of the property regardless of not being enclosed. There is evidence to suggest that the house was intermittently occupied by some of the owners or lessees during this period, and this may have made the deer less vulnerable to poaching. It is likely therefore that what remained of the herd was re-enclosed around 1570; and, since there is no evidence of any introductions of fallow deer to the park until as late as 1933<sup>2</sup>, the presumption that a majority of the present herd at the park are descendants of those originally enclosed seems plausible. The park landscape, composing largely of pasture woodland, would have remained intact during the period of neglect. The garden may have been maintained, as there seems to be no records relating to a revival of the garden at the end of this period. Perhaps the only highlight of this otherwise dark episode of the park's history was that the manor, once again, passed into the holding of the church, when Queen Mary granted it to her close ally, Reginald Pole, the Cardinal and Archbishop of Canterbury<sup>3</sup>. This adds to the manor's richly complex early history that alternates from being an archiepiscopal palace to a royal palace<sup>4</sup> (Appendix 4.1).

The period of neglect for the park appears to have ended in 1565, with the beginning of a tenure of the manor by John Lennard of Chevening (Appendix 4.1). According to some letters written by John Lennard during the tenure, the park was reinstated by re-erecting the pale, and in 1586 the wall around the garden was built<sup>5</sup>. Although these letters may have exaggerated John Lennard's contribution to the park, as they appear to have been written to claim his rights in a dispute of leasehold with the next owner, there is sufficient evidence to suggest that the park was well used during this period. Knole is recorded as a deer park in Lambarde's great survey of Kent published in 1570<sup>6</sup>. The survey which lists 54 deer parks, clearly distinguishing

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<sup>1</sup>Talbot White J. *op. cit.*, p.16

<sup>2</sup>Whitehead G. K. *op. cit.*, p.245

<sup>3</sup>Phillips C. J. *op. cit.*, vol.II, p.398

<sup>4</sup>Sackville-West V. (1971) *op. cit.*, p.7

<sup>5</sup>Phillips C. J. *op. cit.*, p.337-401

<sup>6</sup>Lambarde W. *op. cit.*, p.51



the ones that were then 'disparked', includes Knole amongst the 31 parks functioning at the time as deer enclosures.

During John Lennard's tenure, resources of the park were used for glass production, an interesting addition to the traditional uses of the park (Appendix 4.1). According to oral history sources, sand was collected from pits dug at the northern end of the park (Appendix 4.2), and large scale wood cutting is recorded to have taken place in the park to heat the glass furnace that seems to have been located outside the park. These records of wood cutting and the survey mentioned earlier (previous page) give an idea of the nature of the park landscape in the sixteenth century: of the 446 acres (180 ha) recorded in the survey, 92 acres (37 ha), or about 20%, were woodland; and 6 to 7 woods, with a name for each, have been recorded<sup>1</sup>. If these woods were enclosed and managed as copses is not clear from the available information. Some medieval parks were internally compartmentalised to protect from grazing the woods managed solely by coppicing, which involved an elaborate system of internal banks and fences; the compartments managed as grass or grazed, open pasture woodland were known as 'launds', and the trees in them were kept by pollarding<sup>2</sup>. Although clear and reliable evidence of any internal compartmentalisation in Knole does not appear until the eighteenth century, it cannot be ruled out if some of the woods, that may have been incorporated as the park was enlarged in the fifteenth and sixteenth centuries, were kept as copses<sup>3</sup>. By the beginning of the seventeenth century, the park probably extended to the present entrance area, but had not yet reached the present boundaries elsewhere<sup>4</sup>. The area park seems to have occupied then has remained predominantly open grass or pasture woodland throughout the later history, as evident from the cartographic sources appearing from the late eighteenth century as well as the nature of this area at present. It is likely therefore that the park remained largely or solely as open grass and pasture woodland at least until the seventeenth century.

In 1566 Queen Elizabeth I granted the manor of Knole to her cousin Thomas Sackville, the then Lord Buckhurst. This marks the beginning of the four centuries long association of the Sackville family with the park, although it was not until 1603 that Thomas Sackville could take possession of the property, as it was still held on

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<sup>1</sup>Ward G. *op. cit.*, pp.18-19

<sup>2</sup>Rackham O. (1986) *op. cit.*, pp.125-127

<sup>3</sup>There are two specific references in old documents to copses and coppicing *in* the park, one in 1653 (Appendix 4.1) and the other in c. 1720 (Appendix 4.1). However, in both the cases the available place name evidence is not sufficient to determine if the copses actually existed within the park.

<sup>4</sup>Ward G. *op. cit.*, p.153

lease by Lennards of Chevening (Appendix 4.1). After several years of dispute with the tenants, who had legal rights to the property for 99 years, Lord Buckhurst finally managed to acquire the park by paying off the non-expired years of the lease in 1603.

Thomas Sackville, who was made the 1st Earl of Dorset in 1604, held Knole only for 5 years, before his death in 1608<sup>1</sup>. Yet, he seems to have made a large contribution to the park in this short time; much of the Elizabethan and Jacobean additions to the house are known to date from this period<sup>2</sup>. By 1612, the park had increased in extent to 550 acres (222 ha), according to a tenure document prepared then. The increase must have been made by Thomas Sackville, for it is obvious that his successors, 2nd and 3rd earls of Dorset, could hardly have made any contribution to the property (see Appendix 4.1). No other documents from this period seem to have survived to show how the park was managed then, except for an entry in a diary showing that the walled garden had matured with the Wilderness area already established, and a document indicating that carps were kept in ponds in the park. However, from around 1625 various records begin to emerge, giving a better idea of how the park was managed in the later history.

Knole appears in early British maps of the seventeenth century as a fenced enclosure (fig.4.14). These maps, although inaccurate and only indicative in a local scale, provide a good understanding of the surroundings of the park at the time. A particularly interesting observation that can be made by the comparison of John Speed's map of Kent (1611) with Camden's *Britannia* (1695) is the transience of the park enclosures contemporary with Knole in the locality, within the short span of time covered by the two maps: the 4 enclosures Otford, Comford, North Fryth and Leigh appearing in John Speed's map no longer remain as enclosures in Camden's *Britannia*, while 3 newly enclosed areas, Wildernesse, Bore Place and Halfted, emerge instead. Despite their apparent discrepancies with the synchronous written record, the maps illustrate, in a local sample, the decline of deer parks during the sixteenth and seventeenth centuries: the four enclosures in Speed's map were emparked as early as Knole Park, and Otford, with its two deer parks created by the archbishops of Canterbury, remained as parks, interestingly, in the same ownership as Knole, until the Jacobean times; the new enclosures in Camden's map do not seem to have survived beyond the nineteenth century<sup>3</sup>.

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<sup>1</sup>Phillips C. J. *op. cit.*, vol.I, pp.216-230

<sup>2</sup>Sackville-West V. (1947) *op. cit.*, p.39; and Phillips C. J. *op. cit.*, vol.I, pp.216-217

<sup>3</sup>Lambarde W. *op. cit.*, p.51; Phillips C. J. *op. cit.*, vol.II, pp.380-401; and Talbot White J. *op. cit.*

Knole Park appears to have survived, remarkably well, several years of Sackville family misfortunes in the early seventeenth century and then, the ravages of the civil war in the later part of the century (Appendix 4.1). The park is recorded to have been particularly active during the ownership of the 4th Earl of Dorset, when it was used for a variety of purposes other than deer husbandry (Appendix 4.1). Hops were grown in the park, and the sale of rabbits made up a fifth of the park's income. According to a source of oral history, the whole of the Echo Mount is known to have been a rabbit warren in the past (Appendix 4.2). Pasturage was given to two local farmers for cattle grazing in the summer; in addition, meadows were mown to make hay. Important records coming from this period are the accounts that give costs of employing a 'woodlooker'. While the woodsman may only have been responsible for woodlands of the estate outside the park and keeping pasture woods within, there is some certainty that the park by this time had grown to include areas of woodland that may have been kept as enclosed copses. The 4th earl is recorded to have added some 500 acres (200 ha) to the estate before the civil war. How much of this was enclosed into the park is not known. Yet, the park at the turn of the century had already reached much of its south-western boundary, as evident from Camden's *Britannia* (fig.4.14) and a local map dated 1700 in Maidstone library archives (Appendix 4.1). Much of the high ground in this area seems to have always been relatively well wooded, and woods may have been kept as copses in the seventeenth century. The park by this time would have employed a considerable number of local people for managing its resources<sup>1</sup>.

The extent of damage inflicted on the park resources during the civil war is not quite clear, but the records show that a considerable amount of timber from the park was cut and sold (Appendix 4.1). The estate was reinstated during the 5th earl's time, and the park seems to have returned to normal within a few years after the war. A deed from this period shows that local farmers were allowed for rent to plough anywhere in the park, except for the plain around the house; the ecological survey of the park conducted in 1988 confirmed that the central plateau had never been disturbed by cultivating. Most of the records coming from the latter part of the seventeenth century only refer to the work done at the walled garden and only a little is recorded of the outer park; considerable alterations were made to The Wilderness (Appendix 4.1). Phillips<sup>2</sup> refers to a deed dated 1653 that a coppice in the park named Rumshott was leased for under-wood cutting. Although there is some doubt, arising from the place

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<sup>1</sup>de Haen V. *op. cit.*, p.19

<sup>2</sup>Phillips C. J. *op. cit.*, vol.I, p.393





name evidence and the probable area the park covered then, as to whether the particular coppice existed within the park, this could otherwise be the earliest record of enclosed copses in the park.

Paramount to the understanding of the medieval essence of Knole Park is the fact that nowhere in its early history until the eighteenth century is a record that implies any conscious effort of planting or ornamentation in the park, except for what was done within the enclosure of the garden. There is hardly any doubt that the park was managed in ways that were traditionally applied to pastures, wooded pastures and woods in medieval Britain, which rarely if ever included planting trees<sup>1</sup>. Much of the park would have been maintained as grazed, open grassland, punctuated by pollard trees and more dense pasture woods sustained by pollarding; and woods, if there were any, would have been managed as enclosed copses with pollard standards. The vegetation in the park up to the eighteenth century therefore would have been the outcome of the traditional practices of management on what was enclosed periodically, and not newly created at any time by planting. However, these traditional practices in Britain were to be rapidly replaced by newly emerging trends of planting design as well as plantation management in the eighteenth century.

Parkland ornamentation beyond the walls of the formal garden was almost non-existent in British parks up to the eighteenth century, and the gardens, with their increasingly elaborate, and often grand, formal designs, had been playing a dominant role in the amenity function of the British parklands since the Tudor period<sup>2</sup>. By the early eighteenth century however, the conscious art of outer parkland design emerged, replacing the intuitive functionalism of the medieval park<sup>3</sup>. The new trend, that was influenced by the contemporary landscape design arts of the continental Europe, notably the French and the Dutch, introduced elaborately contrived geometrical elements to the British parklands, such as avenues, vistas, water features and artefacts that extended the stark formality of the garden to the outer parkland, thereby linking the two. These designs often involved large scale planting of woods and groves to create symmetrical vistas and glades through them<sup>4</sup>. Planting of woods in the parklands and the way they were managed were perhaps more influenced by John Evelyn's seminal book, *'Sylva'*<sup>5</sup> than the continental design trends<sup>6</sup>. The medieval

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<sup>1</sup>Rackham O. (1986) *op. cit.*, ch. 5, 6 and 7

<sup>2</sup>Darvill T. C. (1987b) *op. cit.*, p.136

<sup>3</sup>de Haen V. *op. cit.*, p.21

<sup>4</sup>Darvill T. C. (1987b) *op. cit.*, p.136

<sup>5</sup>Evelyn J. *Sylva, or A Discourse on Forest Trees*, 1706, London

<sup>6</sup>Talbot White J. *op. cit.*, p.20

traditions of woodland management were gradually replaced by plantation management during the eighteenth century, and although trees were pollarded and some woods were coppiced, these practices were becoming rare with time<sup>1</sup>.

An upsurge of opinion against the early eighteenth century rigid formality of parklands, brought about the 'English Landscape Movement'<sup>2</sup> by the middle of the century. The movement, which promoted the concept of parks as 'naturalised landscapes' and, in effect, perpetuated their existence to the present day, reversed the earlier trend of extending the formality to the outer park by bringing in, right up to the walls of the mansion in many cases, a restrained informality that emulated the nature of the wider landscape. Many elements of formality including formal gardens were thus abandoned, although avenues and vistas were sometimes retained and integrated in the new designs; and elements like water features were often re-designed to look natural<sup>3</sup>. One important element of the new design concept was the emphasis placed on features of antiquity or tradition in the landscape, such as old pollards, groves of trees, hedgerows or former earth works. These features, accentuated by the new designs, brought back an air of continuity to the parks which had lost their medieval essence to the early eighteenth century formality. The movement thus gave a new lease of life to many then existing medieval parks, ironically though, creating at the same time 'pseudo-medieval' parks of what was emparked in the post medieval period<sup>4</sup>.

The trends of the eighteenth century were particularly momentous in the history of the British parkland, as they caused a fundamental change in the way parks were conceived, created and managed, not to mention their implications on the wider landscape of Britain. In effect, it was these trends that transformed the British park from its medieval to its modern image<sup>5</sup>, conceptually from being an enclosure containing tamed wilderness of austere functionality to a philosophical statement of man's relationship with the landscape<sup>6</sup>.

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<sup>1</sup>Darvill T. C. (1987b) *op. cit.*, p.94

<sup>2</sup>The movement was pioneered by the famous landscape gardeners, William Kent (1684-1748), Charles Bridgeman (?-1738), Lancelot 'Capability' Brown (1716-1783) and Humphry Repton (1752-1818) (Rackham O. (1986) *op. cit.*, p.129).

<sup>3</sup>Darvill T. C. (1987b) *op. cit.*, pp.136-137

<sup>4</sup>Rackham O. (1986) *op. cit.*, pp.128-129

<sup>5</sup>The word *park* tends to be ambiguous towards the twentieth century, as evident from the syntactic implication that it had to be prefixed to distinguish between various forms of *park* that came into being, ranging from *nature parks*, *wildlife parks* and *urban parks* to rather more mundane existences such as the *business park* or the *industrial park*. While it is acknowledged that the twentieth century inventions like nature or wildlife parks have much in common with *the park* in the medieval Britain, the word in the present discussion is used in its original meaning (page 192).

<sup>6</sup>This does not imply that the aesthetic appreciation of parks is a mere eighteenth century development. Parks as a tradition of beautiful landscape can be traced back to Achaemenid



The extent to which the trends of the eighteenth century influenced change in Knole Park therefore becomes fundamental to the appreciation of the value of Knole as a medieval antiquity. The changes made to the park during the eighteenth century and the early nineteenth century broadly reflect the trends of the period, but are not, by any measure, comparable with the magnitude of change that swept through a great majority of the British parks within this period. Knole Park proves to be a rather rare, if not unique, case where the trends of the eighteenth century, or of any other period of the park's history, seem to have been fastidiously adapted with judicious restraint, as if each generation of owner regarded Knole with too tender an affection to wish to modify what was inherited from the preceding generation<sup>1</sup>. The same applies to the house of Knole, which has largely retained its Tudor integrity against the run of architectural taste.

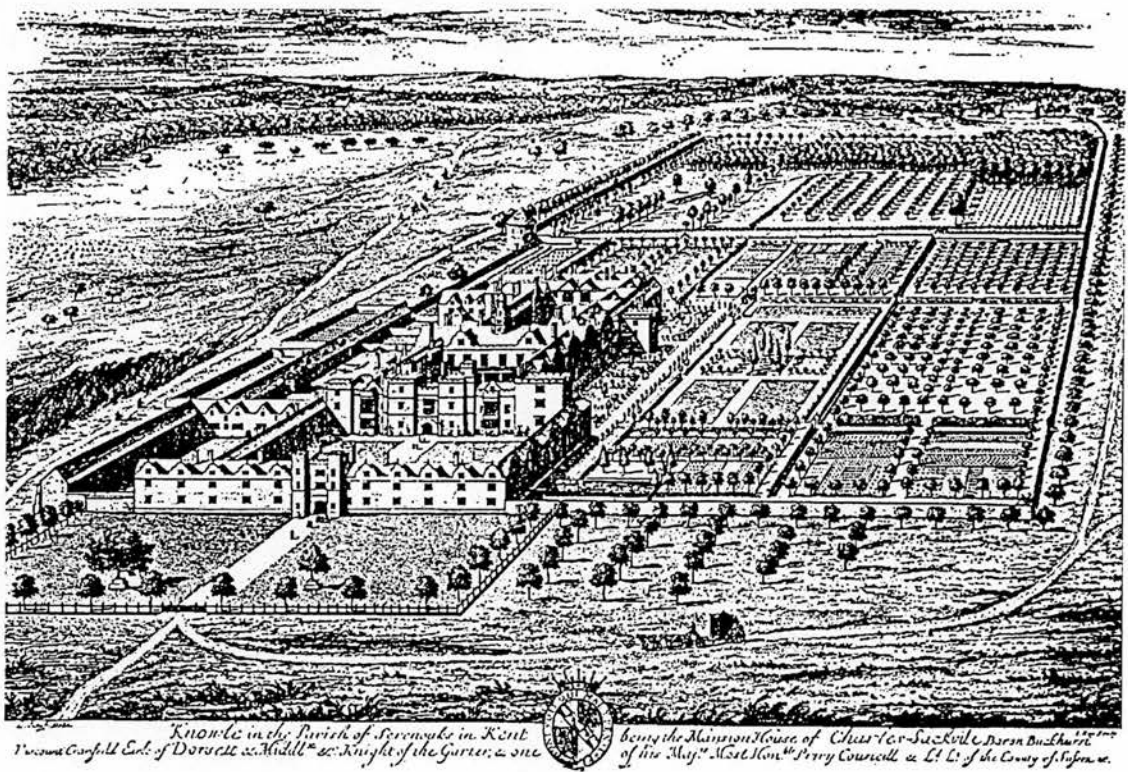
The most significant of the eighteenth century changes to the park were made during the ownership of Lionel Cranfield Sackville, the 1st Duke of Dorset, from 1706 to 1765, a period abounding with records of activity at the park. The earliest evidence of any form of planting in the outer park dates from this period (Appendix 4.1). The five avenues and the associated Birdhouse and ruins, the only formality ever to be inserted into the outer park, were most probably all laid out within this ownership.

Three engravings commissioned within the first two decades of the eighteenth century provide the earliest visual interpretation of the park (fig.4.15, 4.16 and 4.17). The engravings, being largely unconvincing as to the accuracy of the details of the garden and the formal planting in the surrounding area, must have been produced as proposals of improvement in the wake of the early eighteenth century formality, rather than realistic depictions of what was actually there. However, they are useful for deriving inferences as to the nature of the wider layout of the park in the early eighteenth century, as well as in dating, with the help of documentary sources, the key formal elements that were actually adapted. The earliest of the three (fig.4.15) (engraved most certainly before 1706 according to its title inscription that ascribes it to Charles Sackville, the 6th Earl of Dorset) gives a reasonably convincing layout to the outer park: the over-emphasised, central plateau is depicted as a savannah-like, open grassland, grazed by the deer and surrounded in the distance by more dense

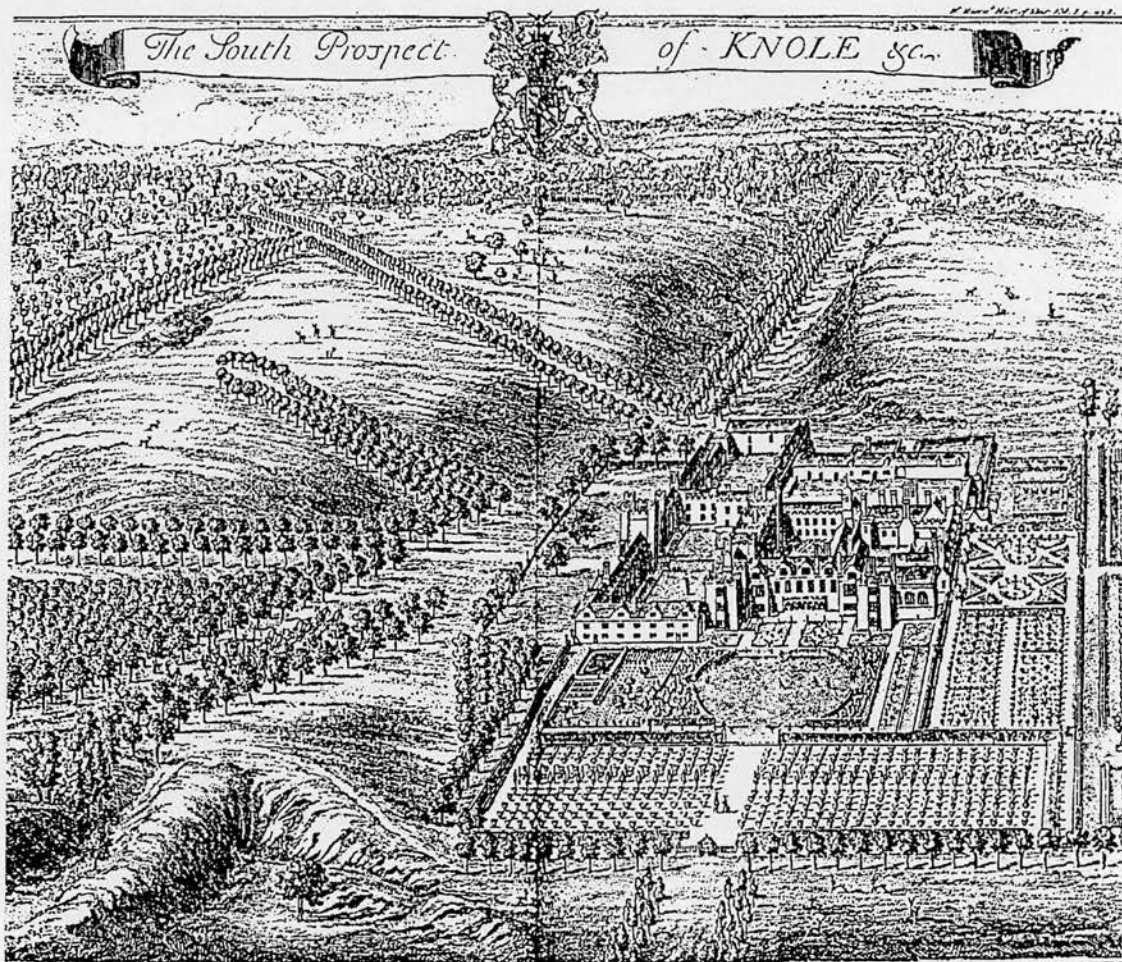
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Persia (Rackham O. (1986) *op. cit.*, p.123), if not to an even earlier period, and must have been the notion behind the medieval parks of Britain. However, the concept of parks as a wholly manipulated or designed landscape does not appear in Britain until the eighteenth century.

<sup>1</sup>de Haen V. *op. cit.*, p.21

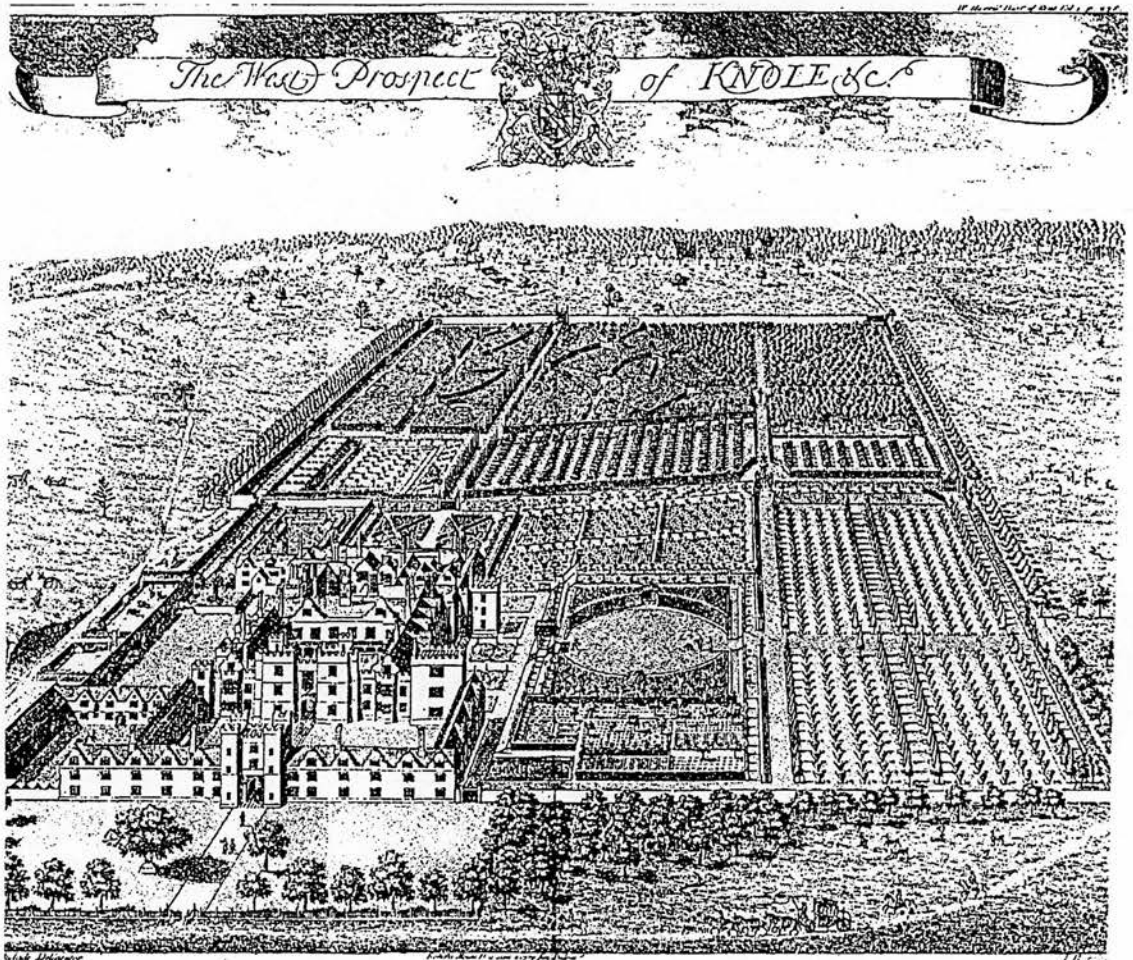


**Fig. 4.15:** Engraving of the West Prospect of Knole by Leonard Knyff and Johannes Kip, Produced Between 1700 and 1707 (Reproduced from **English Houses and Gardens in the 17th and 18th Centuries**, Batsford, 1908, London, plate II).



**Fig. 4.16:** Engraving of the South Prospect of Knole, 1700 - 1719, by Johannes Kip (Reproduced from Harris J. **The History of Kent, vol.I: An Exact Topography or Description of the County**, D. Midwinter, 1719, London, pp.278-279).





**Fig. 4.17:** Engraving by Thomas Badeslade, 1715 - 1719, of the West Prospect of Knole (Reproduced from Harris J., *op. cit.*, pp.278-279).

woodland, a portrayal that corresponds largely with the present situation; the keeper's lodge is shown in a prominent, yet unadorned setting, in contrast with the splendour of the house enclosure; the emphasis placed on the footpath / bridle-way north of the house enclosure signifies that it has remained a major public route throughout the parks history (see fig.4.11 and 4.19). The formal planting shown around the house enclosure has many similarities with what exists at present, particularly the avenue north of the enclosure and the traces of the row south of it; there are also traces of what was adapted from the planting shown on the forefront, much less elaborate than what the engraving indicates (see fig.4.3, 4.4 and 4.20). The portrayal of the garden in the engraving has some basic similarities with its present layout, more so than what is depicted in the two later engravings (fig.4.16 and 4.17). This may be an indication that the earlier engraving was largely a modest proposal of change to the garden's original Tudor layout and the two later engravings were more grandiose approaches of alteration. However, there is not enough reliable evidence to form a satisfactory idea of what was actually there in the garden before the eighteenth century and what actual changes were made to the garden during the early eighteenth century<sup>1</sup>, although extensive alterations and planting in the garden have been recorded after 1723 (Appendix 4.1). The two later engravings, both published in 1719, give virtually the same layout to the garden, and in the case of Kip's work (fig.4.16), a rather ostentatious scheme of avenues radiating from the house enclosure. Only the Duchess Walk and the avenue and the row parallel to the house enclosure were adapted from this proposal, if not already planted by 1719. It is interesting that Badeslade's engraving (fig.4.17) is largely consistent with Kip's, from what is visible, possibly implying that they were both part of the same proposal. The remarkable consistency of all the three engravings as regards the treatment of planting in front of the western frontage of the house suggests the possibility that a good proportion of this could have been adapted. Kip's engraving shows in the north of the park enclosed young planting and perhaps young plantations. If they were not already there at the time of the engraving, they were most likely planted within the decade. Badeslade shows in the distance a keeper's lodge surrounded by young planting, which tallies with a written record from 1718 (Appendix 4.1). Much of the new planting seems to have been carried out from 1718, according to documentary and oral history sources and

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<sup>1</sup> Although the restoration of the garden is excluded from this case study, a fuller knowledge of the layout adapted for the garden in the eighteenth century would have provided a better understanding of the principle behind the formal elements inserted into the outer park within the same period. However, the formal elements of the eighteenth century proved to be secondary in significance in the concept formulated by the landscape architects for restoration of the park

dendrochronological evidence (Appendix 4.1). This confirms that the engravings were a sequence of design proposals.

Planting of all the avenues seems to have been completed by the middle of the eighteenth century. As part of this scheme, the Birdhouse and the ruins around it were erected around 1761 on an artificially heightened knoll set on the axis of the Broad Walk. Large scale planting in the park has been recorded throughout this period, which includes the groves of trees on the Echo Mount (Appendix 4.1). Planting at this stage would have initiated much of the plantation woods on the high grounds of the park, and they would have been inserted into open areas among natural woods that were already there. If the new plantations followed any concept of structural design is hard to establish from the evidence available, but it is rather unlikely that an overall scheme of formality was applied. There are signs however in the present layout that some irregular glades through planting may have been left open, in addition to the open valleys, possibly allowing views to the house from the outer park and vice versa, or from the park to external features. If these were actually contrived and not accidental in the making, they must have been influenced by the English Landscape Movement, since they do not relate with the formal elements of the park; the groves of trees on the Echo Mount though were most certainly influenced by the Landscape Movement. Beech seems to have been a favoured choice of planting, while elm has been recorded as well (Appendix 4.1). All the avenues, except for the Chestnut Walk and the southern half of the Broad Walk - composed of beech, were planted with sessile oak, as opposed to the pedunculate oak in the plantations<sup>1</sup>. There is no evidence of non-native species being planted in the park during the eighteenth century.

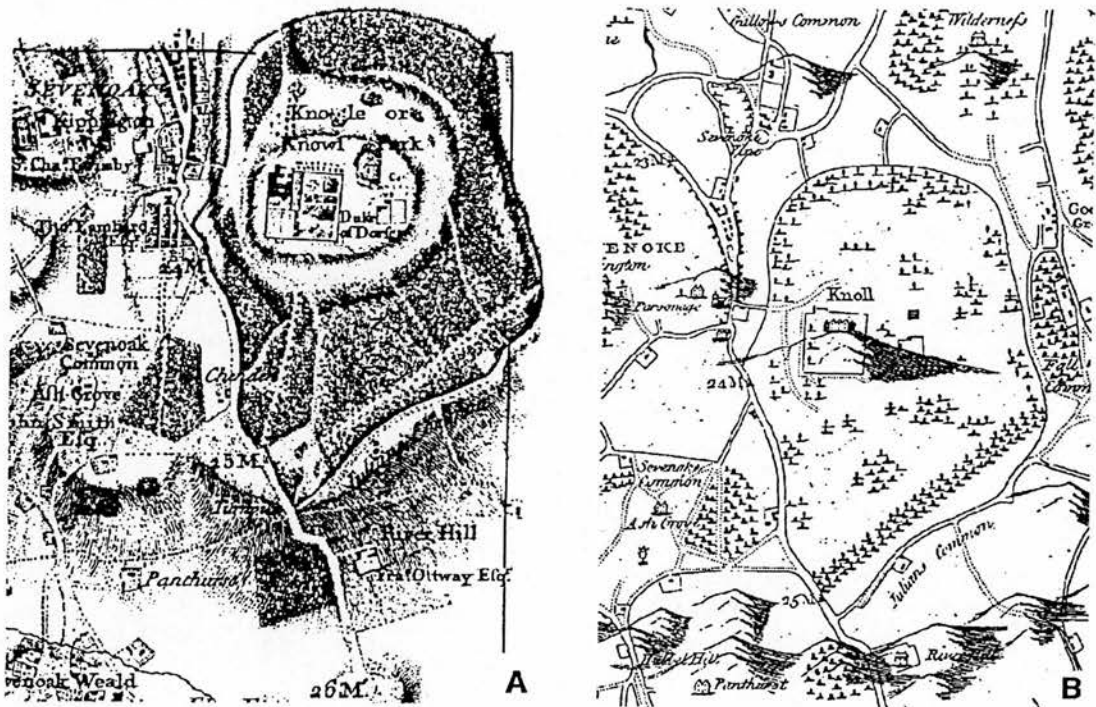
By the middle of the eighteenth century the park had been enlarged to cover an area of 853 acres (345 ha). Much of the enlargement seems to have been made after 1724. A curious document from around 1720 gives a total of 615 acres (248 ha) to 'plain and rough lands' in the park (Appendix 4.1). Although it is hard to interpret these land uses, the figures show that the park was then larger than at least 615 acres<sup>2</sup>. The enlargements made by the 1st Duke of Dorset had brought the southern half of the park to its present form before 1769, as evident from records of intake as well as two maps published in 1769 and 1778 (fig.4.18). The map by Andrews, Drury and Herbert, though rather indicative, shows the avenues all in place and wooded high grounds and glades through them that correspond much with the present situation. It

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<sup>1</sup>de Haen V. *op. cit.*, p.19

<sup>2</sup>Phillips C. J. *op. cit.*, vol.II, pp.16-18: the document gives 9 named woodlands some of which were clearly outside the park according to present place name evidence. A total of 267 acres are given under these woods, which includes a coppice named Skinhill.





**Fig. 4.18:** Knole Park and the Locality in (A) - 1769 (Reproduced from Andrews J., Dury A. and Herbert W. *A Topographical Map of the County of Kent, 1769*, Facsimile Reprint, Margary H., 1969, Kent) and (B) - 1783 (from Hasted E. *The History and Topographical Survey of Kent*, Simmons & Kirkby, 1778 - 1799, vol II, pp.314-315).

also indicates all the formal and other planting on the central plateau, confirming their date of origin.

It is remarkable that there is very little reference to deer at the park in the available documents until as late as 1867. Except for a single document from the sixteenth century (Appendix 4.1), there is no written evidence of the numbers of deer or how they were managed in the early four centuries of the park's history. While there are records of other recreational activity in the park, such as bull-baiting and duck hunting (Appendix 4.1), it is interesting that there seems to be no record relating to any form of deer hunting at the park<sup>1</sup>. This seems to accord with the point of view that the medieval parks were not hunting preserves, although they could be the scene of hunts<sup>2</sup>. Many writers on deer parks tend to over-emphasise deer hunting as the basis of the concept of the deer park<sup>3</sup>. While this is obviously true in the cases of the chase and the royal forest, it is hard to believe that deer hunting was a significant consideration in the choice of site for medieval parks and the way they were managed up to the eighteenth century. What seems more plausible is that the deer were the basis of the management regime of the medieval park and therefore its economy. More importantly, the aesthetic quality of its landscape was produced by the combination of deer grazing and associated management practices and the deer themselves as a graceful visual element. Whether the eighteenth century parkland design trends took deer hunting as a major consideration is rather arguable. Yet, it cannot be ruled out if some elements in parks like avenues or glades through woods were designed with deer hunting in mind. In the case of Knole Park, de Haen<sup>4</sup> suggests the possibility that the Broad Walk and the Chestnut Walk, both set nearly 30 m wide, may have been used for hunting. This may well have been the reason for the width of some of the rides that connect the two main avenues (fig.4.2). However, the lack of any evidence of deer hunting at the park makes such assertions all conjectural. According to a source of oral history, deer were slaughtered in one of the north yards of the house enclosure (Appendix 4.2). This confirms that the deer were more often captured and slaughtered, like any other domestic animal reared for meat. An ice house, one of the essential ingredients of the manors from the sixteenth century, was in use at Knole

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<sup>1</sup>Phillips quoting from an essay on the archbishops of Canterbury, reveals which of the archbishops who owned Knole enjoyed field sports (*Ibid.*, pp.391-392) (see Appendix 4.1). This though has no particular relevance to Knole, or any other deer park they owned, as the See of Canterbury included many chases since the thirteenth century (Talbot White J. *op. cit.*, p.14).

<sup>2</sup>Rackham O. (1986) *op. cit.*, p.125

<sup>3</sup>e.g. Shirley E. P. *op. cit.*, pp.11-23; Hingston F. *op. cit.*, pp.13-15; Prior R. *op. cit.*, pp.70-75; and Whitehead G. K. *op. cit.*, pp.19-25

<sup>4</sup>de Haen V. *op. cit.*, p.19

Park in the eighteenth century (Appendix 4.1). The house, since disused and filled in, still makes an attractive feature with its domed roof, set amongst the trees below the Echo Mount (fig.4.11).

After a short lapse of activity during the ownership of the 2nd Duke of Dorset, which is apparent in Horace Walpole's characteristically exaggerated remarks in an article he wrote following a visit to Knole (Appendix 4.1), the park was revived by the 3rd Duke of Dorset, who is known to have been much attached to Knole<sup>1</sup>. Continuing the work the 1st duke had initiated, the 3rd duke evidently completed planting of all the woodland on the high-grounds of the park; since then (1799) the wooded areas of the park have remained virtually the same<sup>2</sup>.

There are no records available to show how the planting was done or how the plantations were managed in the eighteenth century. Considering the scale of the planting that seems to have been carried out, it can be argued that the plantations would have been managed as enclosed units for a fair length of time to protect them from grazing. The 'Mudge's Map of Kent', published in 1801 as the first in the old series of Ordnance Survey (fig.4.19), does not give any indication of woodlands being enclosed; they are shown far more diffused in comparison with woods outside the park which have more firm outlines. The 1804 'Map of Knowle Park' (fig.4.19), the earliest, reliable plan of the park, gives about 15 separate units of woodland in a layout very much similar to the present; these units are rather irregular in shape and, interestingly, are labelled coverts. It seems probable from the two maps that the new plantations had matured sufficiently by the nineteenth century to be opened up for grazing, unless if the planting had been inserted into existing open pasture woodland, as enclosed units within mature woods.

The ecological survey of the park conducted in 1988 traced extensive tracts of old, and often unusually large, deciduous trees in the woodlands of the park, which the survey concluded to be of planted origin. This observation makes it plausible that much of the plantations would have been laid out as large, enclosed blocks of thinly planted trees. The survey did not specify any observations of old pollard standards or coppice stools within these woodlands. The oak pollards and some under-storey trees (fig.4.25) the survey recorded to be the oldest trees in the park always occurred on the margins of dense woods, when they were not found as isolated specimens. Nevertheless, it is rather likely that some managed, natural woodland existed within

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<sup>1</sup>Phillips C. J. *op. cit.*, vol.II, pp.187-189

<sup>2</sup>de Haen V. *op. cit.*, p.21



these areas prior to the eighteenth century planting, and would have been incorporated into the newly planted blocks. The picture that emerges from this evidence is that the woodland vegetation in the park by the nineteenth century was entirely pasture woodland of both planted and natural origins. The observations made in the park for the present case study showed that even the isolated pollard trees had not been managed for well over a century. It is likely therefore that the traditional practices of woodland management were gradually abandoned at the park from the time of the new plantations and then existing original woodland vegetation would have eventually disappeared due to neglect, pressure of grazing and competition from the planted trees. Similarly, the new plantations would have been allowed to grow naturally, as what seem to remain from the plantations show no signs of traditional practices applied on them. It is clear therefore that the park woodland vegetation by the time of the recent storm was made up entirely of planted trees, except for the occasional presence of old oak pollards or relict under-storey trees on the woodland margins. The Ordnance Survey 1st edition of 1868 (fig.4.11 and 4.22) confirms that the woodlands of the park remained as open pasture woodland until the late nineteenth century; the large enclosure that the map indicates north of the Birdhouse knoll was then used for arable farming, protected from deer by a system of tall chestnut hurdles, and was called Hurdle End (Appendix 4.2).

The 3rd Duke of Dorset is recorded to have made some important changes to the house and the garden. The Gothic windows of the house, the clock tower, hothouses and pineries all date from this period. Some straight paths of the Wilderness area of the garden were made serpentine. The duke also added a considerable amount of land to the park (Appendix 4.1). As evident from the 'Mudge's Map of Kent' (1801) and the 'Map of Knowle Park' (1804) (fig.4.19), the additions by the 3rd duke and his successor had brought the park much to its present form, except that it was then still well short of its present extent at the northern boundary. The cricket ground in the park may also date from this period, as the 3rd duke is recorded to have been active in promoting the game in Sevenoaks<sup>1</sup>. A picture in the Sackville collection painted around 1775 gives a much reproduced, classic image of the house frontage in the late eighteenth century (fig.4.20). The large, magnificently mature trees that frame the house front in the picture correspond with some of the planting indicated in the engravings produced earlier in the same century (fig.4.15, 4.16 and 4.17). Only a few of these trees remain at present.

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<sup>1</sup>Phillips C. J. *op. cit.*, vol.II, pp.193-198

The successors of the 3rd duke enlarged the park to an area some 100 acres (40 ha) greater than its present extent within the first half of the nineteenth century, by sizeable intakes all along the northern boundary. In 1888, the park was 940 acres (380 ha) in extent (Appendix 4.1), which included some land near the entrance area that no longer remains part of the park (fig.4.21).

The eighteenth century layout of the park seems to have remained largely unchanged throughout the nineteenth century. The most significant addition to the park in the latter century was the large scale inter-planting of conifers for the first time in the park's history. Between 1811 and 1815 large numbers of larches and firs were inserted into the established woodlands. In addition, equally large numbers of deciduous trees like ash, sycamore and beech were added to the plantations (Appendix 4.1). These new plantings would have considerably altered the species composition of the oak and beech-dominated woodland that existed before. A significant change made to the house at this time was the building of the garden front colonnade and the orangery. The present length of the park boundary wall was built between 1825 and 1826 (Appendix 4.1).

Shirley<sup>1</sup> in 1867 described Knole Park as "*ornamented with finest beech trees*" and "*covered with as fine a turf as any in the world*". The description gives a herd of 400 fallow deer at the park. The number of fallow deer had increased to 670 by 1892, according to Whitaker<sup>2</sup>, who adds 60 red deer to the herd. By the time of Whitehead's description of the park in 1950<sup>3</sup>, there were 300 fallow deer and 80 Japanese sika in the herd; the sika seem to have been introduced to the park around 1890. The herd at present has increased to its late nineteenth century numbers, made up mostly by fallow, a smaller number of sika and seven red deer<sup>4</sup>; most of the red deer were removed around 1935, as they proved to be more aggressive and often tended to escape from the park causing damage to surrounding properties (Appendix 4.2).

A much more detailed layout of the park and its surroundings emerges from the Ordnance Survey 1st edition of 1868 (fig.4.22). It features some important elements of the park that are otherwise difficult to date. A rifle range was set around this time in the south valley, from which the valley derives its name. The map also records the masthead, erected at the highest point at the southern corner of the park to support a viewing platform, which has been recorded in the last century to have

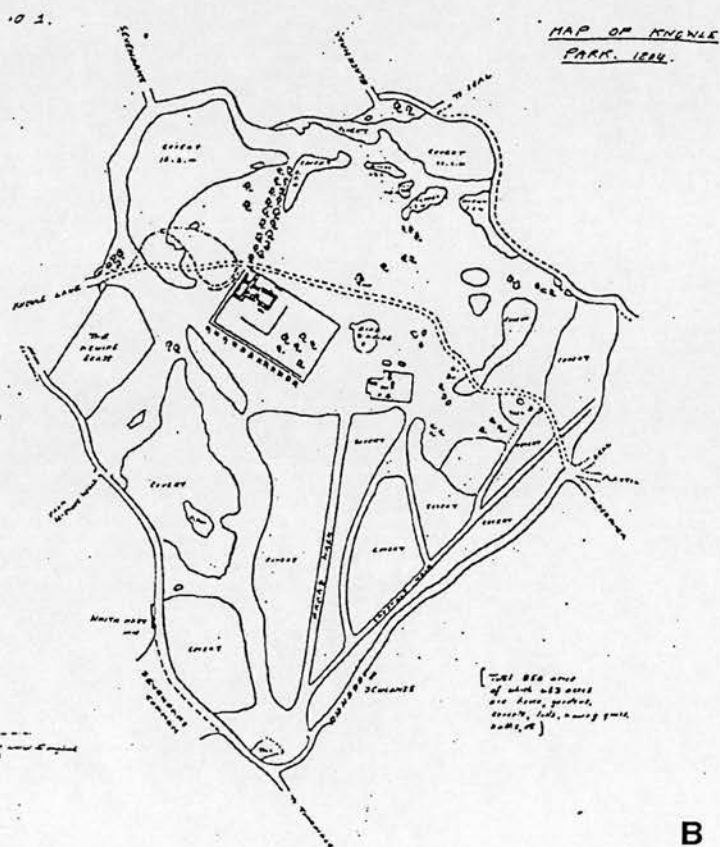
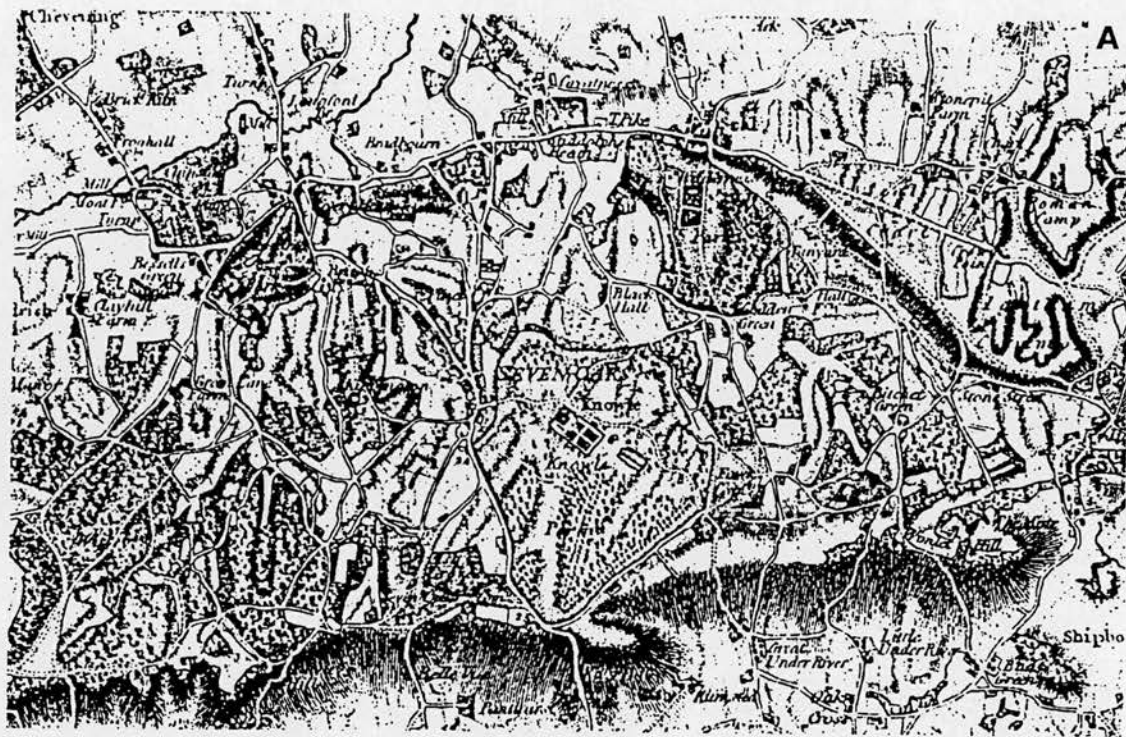
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<sup>1</sup>Shirley E. P. *op. cit.*, pp.70-71

<sup>2</sup>Whitaker J. *op. cit.*, pp.80-81

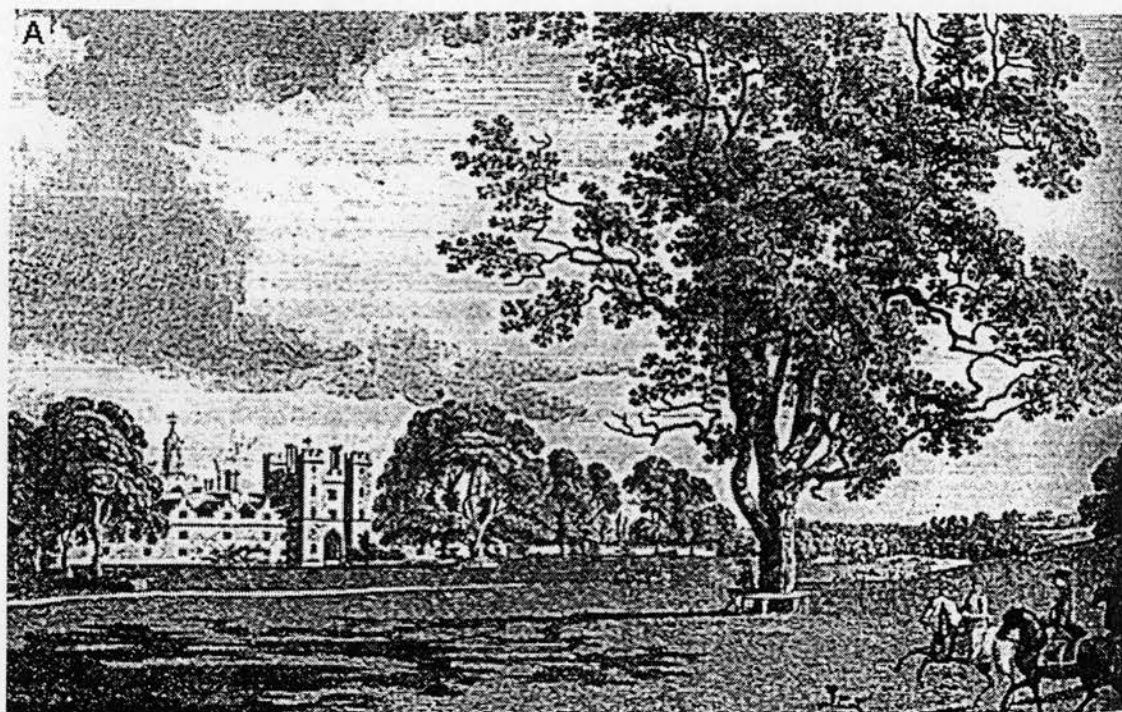
<sup>3</sup>Whitehead G. K. *op. cit.*, p.245

<sup>4</sup>de Haen V. *op. cit.*, p.21

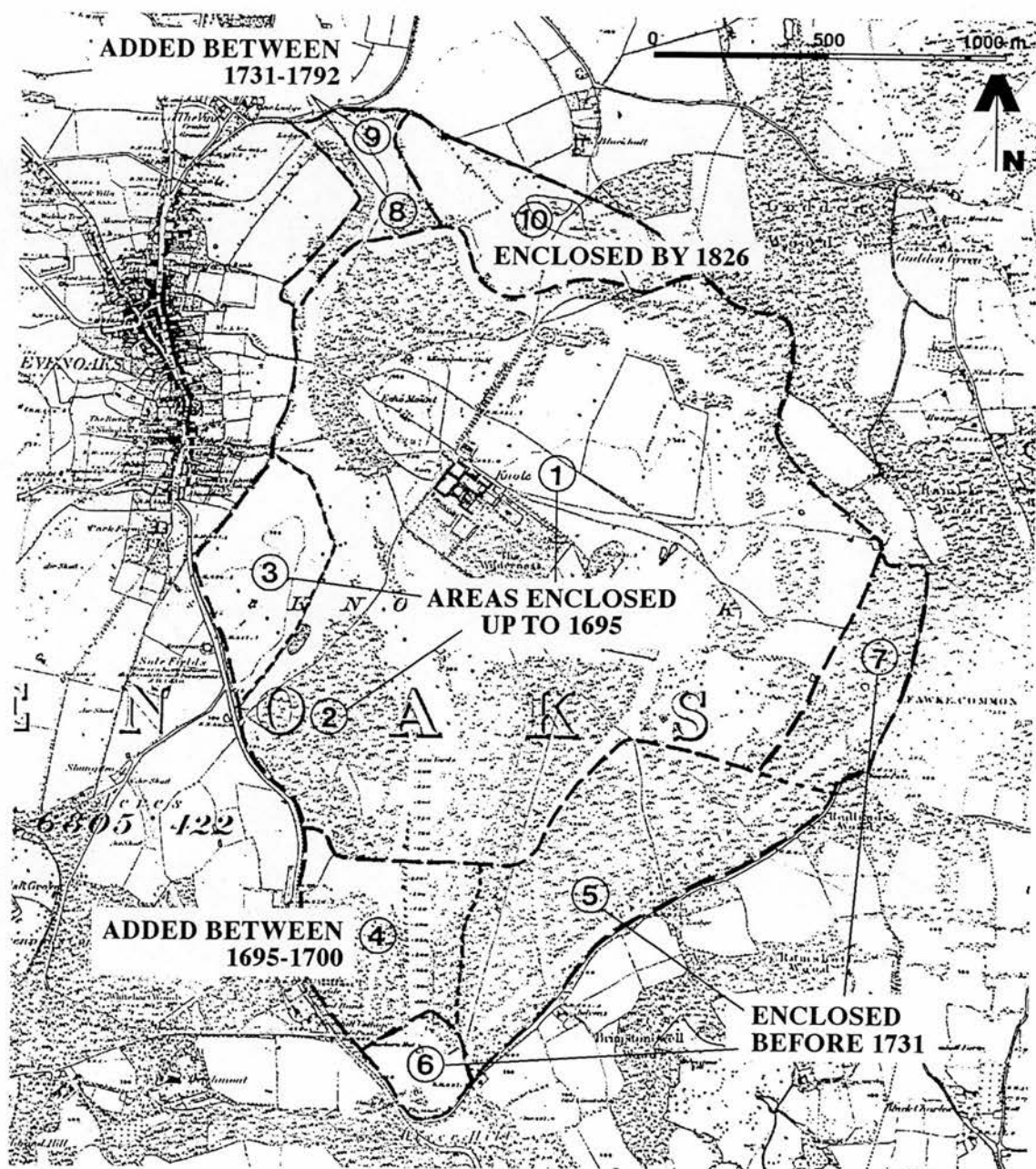


**Fig. 4.19:** (A) - Knole Park and Its Environs from 'Mudge's Map of the County of Kent' (The First Published Ordnance Survey Map, 1801, Reproduction, Harry M., 1990, Sheet 3, one inch to a mile) and (B) - Layout of the Park in 1804 from an Original Park Plan (Courtesy Sevenoaks Library Archives).





**Fig. 4.20:** Views of Knole House from the Main Approach Drive (View 1: Fig. 7.40): (A) - From a Painting by Paul Sandby Dated c. 1775, in the Sackville Collection (Reproduced from de Haen V. *op. cit.*, p.20) and  
 (B) - A Recent Picture Taken from Where the Above View Begins to Unfold as a Silhouette of the House Framed in Trees, Over the Brow of the Echo Mount.



**Fig. 4.21:** Historical Development of Knole Park in Terms of Land Intake Since 1695 (For Sources See Appendix 7.1) (Reproduced with Kind Permission from Messrs. Colvin & Moggridge).





commanded spectacular views south across the Weald. The map records all the notable old trees in the park, such as the Old Oak, the King Beech (fig.4.23) and King John's Oak, which would have been well known curiosities at the time.

The Victorian trend of planting many kinds of exotic tree in parklands bypassed Knole, leaving only a few cedars south of the house enclosure which gave the name Cedarholme to the area (fig.4.2).

The only ever dispute between the owners of Knole and the local residents regarding access through the park is recorded in 1884. The decision by the 1st Lord Sackville to close the town gate to local pedestrians caused the local people to riot (Appendix 4.1). This shows the significance of the local tradition that regards the park as a shared asset rather than a private property.

The golf-course was inserted into the park in 1923. It has been integrated well into the landscape. However, it has brought with it some anomalous planting of non-native tree species. The other inappropriate development of the present century has been the establishment of 5 new plantation blocks within the woodland areas (fig.4.13). These have been meant to raise beech woods in a nursery crop of pine and larch. However, due to poor survival rate of the main crop the conifers have developed into incongruous monocultures, though well screened by the woodland around.

In 1946, the 4th Lord Sackville handed over Knole House and the entrance area of the park to The National Trust, with an endowment sum for upkeep<sup>1</sup>. Since then, much of the house and the garden has been maintained by the Trust. The garden remains private much of the year, except in the summer months when the Trust opens it to the public.

Two local sources of oral history provided the landscape architects with substantial information enabling them to interpret, date and evaluate many features of historic interest in the park, much of which were not recorded in the available documentary sources (Appendix 4.2). Firstly, the various past uses of the park had left many features or marks on the landscape, some of which, particularly of relatively recent origin, could have been easily overlooked in the survey without local assistance. And secondly, the past uses and events had also left behind a set of place names within the park, which were held in local use but hardly ever recorded. Oral

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<sup>1</sup>Sackville-West V. (1971) *op. cit.*, p.15



A



B

**Fig. 4.23:** (A) - The Olde Oak at Knole Park in the Early Nineteenth century (Reproduced from Brady J. H. *op. cit.*, p.68) and  
(B) - The King Beech Early This Century (Reproduced with Kind Permission from Messrs. Colvin & Moggridge).

history also helped translate the written history into actual physical elements of the park landscape. It emerged from the oral information that the local people, up until the recent past, enjoyed the traditional rights of gathering fallen wood in the park without charge, in addition to their rights of liberal access to the property. The locals were also allowed to collect chestnuts; the main reason for growing chestnut in the park, it emerged, was to provide a good crop of nuts for the deer to feed on. The oral history information made the park landscape come alive with remembered features, showing how much more meaningful an ancient landscape could be to its users than to an outsider. There were some minor earthworks in the park that could not, however, be interpreted or dated.

The overall picture emerging from the study of Knole's historical development was that the park had largely retained its medieval essence throughout its five centuries of history, the changes made to the park during this time having been subtle, gradual and accumulative; even the more notable modifications of the eighteenth century proved to have been restrained in comparison with other parks of similar origin. At least, the central core area of the park had remained virtually unaffected by developments since the eighteenth century. The remainder, largely fashioned by the eighteenth century planting, had eventually merged and harmonised with the core area under the unifying influence of deer grazing, the key factor that proved to link the park's medieval past to its present. While it was the continuous presence of deer that had made Knole remain a true deer park, it was essentially the pattern of deer grazing and associated low-key management practices that proved to have maintained the park as an isolated special fragment of the medieval landscape of Britain.

#### **4.4 The Park's Ecological Value**

The ecological survey of the park carried out in November, 1988 confirmed the findings of the historical research by concluding that the ecologically valuable assets of the park were all products of a long history of deer and pasture woodland management continued from the early beginnings of the park. The survey report, which was produced by a team of three ecologists separately investigating flora, epiphytic flora and fauna, and included information obtained from the Nature Conservancy Council and local naturalists, provided an invaluable contribution to the understanding and evaluation of the park landscape:

*"Knole has been a deer park since it was enclosed by Archbishop Bouchier in 1456. This has, to a large extent, protected the emparked*



*area from the vicissitudes of land-use change which have affected most of SE. England, so, in certain aspects, the plant and animal communities it supports represent those of a much earlier period, once widespread, now all but vanished. Relict assemblages such as these are highly regarded by the conservationists as they are rare, impossible to recreate, and from them it is possible to draw inferences about the ecology of the 'wildwood' that formerly covered Britain."*<sup>1</sup>

The topographical complexity of the park landscape had resulted in an irregular mosaic of ecological associations. The ecologists therefore classified the park landscape into the four major vegetation zones, woodland, acid grassland, bracken and more fertile grassland, within each of which the various habitat types present were described in detail (fig.4.24).

The oldest trees the survey identified in the park were 25 oak pollards, which were found mostly as isolated specimens and only rarely as loose clumps of two or three (fig.4.25). The ecologists described *"these often hollow trees of great girth"* as possessing *"considerable character"*; and although they were *"now stag-headed and appeared to be dying"*, there was evidence that *"on acid sites they could live to over 500 years"*<sup>2</sup> (fig.4.26); *"trees as large and ancient as these"* were *"extremely rare in Western Europe"* and *"their special features"* included *"unusual lichens and beetles"*. The ecologists believed that the pollards provided *"a direct link with the 'wildwood'<sup>3</sup> that formally covered Kent"*<sup>4</sup>: the largest concentration of the pollard oaks were recorded on the central plateau, particularly in and around Cedarholme, the area the historical research proved to have been the initial enclosure of the park (fig.4.21 and 4.25). The pollards here were found in an acid grassland association whose floristic composition and the associated fauna indicated that the grassland was as ancient as the oak pollards and therefore was closely linked to the latter. The ecological evidence strongly suggested that the oak pollard-acid grassland association directly descended from the natural vegetation emparked by Archbishop Bouchier in 1456, and was the outcome of a system of traditional pasture woodland management practices continued unchanged from this early period (fig.4.24).

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<sup>1</sup>Quoted from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, Dr. O. L. Gilbert, S. A. Williams and F. Rose, December, 1988.

<sup>2</sup>*cf.* Rackham O. (1986) *op. cit.*, pp.151-152

<sup>3</sup>'Wildwood' is a term coined by the natural historians to describe the prehistoric woodland vegetation of Britain (Rackham O. (1986) *op. cit.*, pp.68-69).

<sup>4</sup>Quoted from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, Dr. O. L. Gilbert, S. A. Williams and F. Rose, December, 1988.

The remaining pollard oaks were found scattered in peripheral areas of the park, that were known to have been enclosed after the mid-seventeenth century (fig.4.21 and 4.25). Their distribution followed the general pattern of being on the margins of dense woods that appeared to have descended from the eighteenth century planting, but never inside them (fig.4.19 and 4.25). They could have been part of the same pasture woodland system that produced the pollards on the central plateau, extended from the core area as the park was progressively enlarged and was later supplanted by the eighteenth century planting. Yet, the abrupt and considerable gap in the distribution of pollards beyond the central plateau suggested that those in the peripheral areas were more likely to be the remaining pollard standards of copses that could have been periodically enclosed into the park and later obliterated by the eighteenth century plantations. The available distribution pattern of the pollard oaks was incomplete as the woodland vegetation in the south-western quarter of the park, which had been almost totally devastated by the storm, did not yield any traces of such antiquity. However, considering the overall structure of the remaining woodland vegetation in the park, the ecologists concluded that the traditional practice of coppice management would have been rarely applied in the park for much of its history, and instead, a less intensive form of pasture woodland management would have been used all over the park; copses, as they were enclosed, would have transformed gradually into pasture woodland and merged with the rest of the woodland in the park, the peripheral oak pollards being the remnants of such copses.

In addition to the pollard oaks, there were some hawthorns of similar antiquity found scattered along the bases of wooded valley-sides. While they were an important element of the ancient woodland structure, they proved to be associated with a rich insect fauna.

The avenue trees were dated as the next oldest in the park. The trees forming the Chestnut Walk were dendrochronologically dated back to *circa* 1700. Although sweet chestnut in general was not particularly good for wildlife, the ancient and large trees in the avenue, in addition to the picturesque forms they possessed, harboured a considerable wealth of fungal flora and, as a result, associated invertebrates. The avenues all proved to pre-date the surrounding woodland by a considerable length of time. It was remarkable therefore that the avenue trees had survived the storm reasonably well, compared to the trees of the adjacent woods. However, the pattern of damage was not uniform throughout the park. The contrast for example of storm damage between the avenues and the woodland on the highest ground in the south was not so well marked.

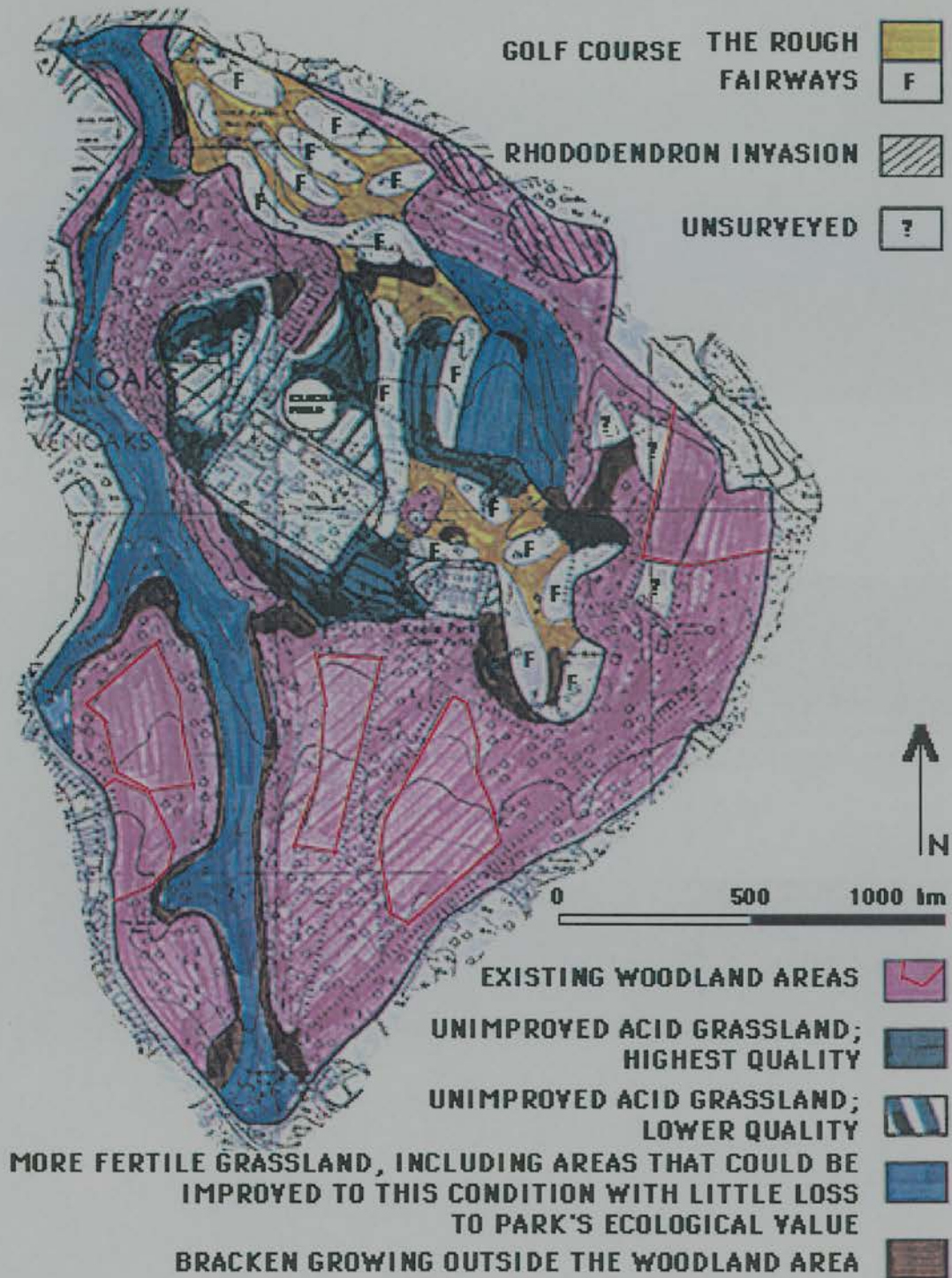
Extensive tracts of old and often unusually large trees constituted the remaining woodland in the park, excluding the five twentieth century plantation blocks (fig.4.24). These tracts appeared to have been dominated, until the recent storm, by sessile oak, beech and sweet chestnut; associated species such as ash, field maple, birch and sycamore were rather scarce and were mostly present in the north-western quarter of the park. Abrupt changes in the floristic composition of these tracts, which did not seem to correlate with the environmental variables, proved that they were of planted origin.

The woodland in general had developed a single-storeyed structure, having been simplified by heavy deer grazing continuously over the last 200 years. Deer grazing had suppressed regeneration, leaving no trees of young or intermediate age groups within the woodland. Nor had it allowed a shrub under-storey, with the exception of common rhododendron in one area (fig.4.24). Similarly, grazing had rendered the woodland ground flora sparse and species poor, imposing a strong pressure of selection in favour of grasses and unpalatable species such as bracken; woodland herbaceous species were rather rare and included wood spurge, wood sedge, lords and ladies and, in one locality, foxglove. There were no signs of any significant attempts made during the last 150 years to improve the age structure of the woodland by under-planting, except for the failed plantations which were meant to raise beech woods in conifer nurse crops; very low survival rate of beech due to heavy squirrel damage had resulted in blocks of coniferous monocultures, which proved to be of little ecological interest and, more importantly, out of character with the rest of the woodland in the park.

Ornamental trees were remarkably scarce in the park, even in areas close to buildings. They occurred mostly as single specimens and included horse-chestnut, yew, holm-oak, Turner's oak, grand fir, grey poplar and cedar. Anomalous to this general pattern, however, were the trees planted on the golf-course within the last three decades. This poorly selected planting had brought into the park a selection of ornamental cultivars of tree, such as bright coloured or variegated leafed maples, large flowered hawthorns and even pink or purple leafed cherries and crabs, which were quite out of character in the park's unadorned historical context (fig.4.27).

The acid grassland on the central plateau, much of which was associated with the ancient oak pollards, proved to be of great ecological interest (fig.4.24). The nature of the terrain that the grassland occupied indicated that it had not been cultivated for a very long period of time. Relatively less grazed and trampled by the deer, the





**Fig. 4.24:** Distribution of the Major Vegetation Zones at Knole Park, Identified in the Ecological Survey. The boundary of the golf-course is indicated together with the fairways, and existing and former conifer plantations are included within the woodland area, indicated by red enclosure boundaries. (Reproduced with the Kind Permission from Messrs. Colvin & Moggridge)



**Fig. 4.25:** Distribution of Major Groups and Individuals of Ancient Oak Pollards in Knole Park (Reproduced with Kind Permission from Messrs. Colvin & Moggridge).



**A**



**B**



**Fig. 4.26:**     **A** - Ancient Oak Pollards West of the House Enclosure of Knole.  
(Reproduced from de Haen V. *op. cit.*, p.19)

**B** - Ancient Acid Grassland in the Cedarholme Area, Punctuated by  
Old Oak Pollards; the Unimproved Grassland is Densely Dotted with Anthills.





**Fig. 4.27:** Two Areas of the Golf-course at Knole Park Showing Recently Planted Ornamental Trees Disrupting the Harmony of this Otherwise Well Integrated Land Use.

grassland was observed to be a taller and floristically poor sward dominated by species indicative of pure acid grassland conditions, perhaps never affected by addition of lime or any other agro-chemical. The unusual presence of closely packed, active and disused anthills in the grassland produced by the yellow meadow ant confirmed that the grassland had not been improved by cultivation or the use of agro-chemicals for several centuries if ever (fig.4.26). The hummocks produced by the anthills had diversified the micro climate of the terrain, thereby considerably increasing the otherwise limited floristic richness of the acid grassland (fig.4.28). The association thus supporting a rich flora of flowering plants, bryophytes and lichens proved to be particularly well preserved for a site in SE England, and the fact that the park had earned from mycologists the reputation of being the best site in Kent for the grassland toadstools of the genus *Hygrocybe*<sup>1</sup> added to the value of the grassland.

The ecologists ranked the acid grassland, together with the ancient pollard oaks, as the best preserved relict ecological association of the park and, in view of the rarity of such grasslands in Kent and the rate at which they were diminishing in lowland Britain<sup>2</sup>, concluded that the acid grassland community at Knole was of county importance. The ecological value of the grassland was clearly a result of the long history of the relatively low level of deer grazing, which had kept in check any scrub invasion, and, more importantly, the lack of any soil improvement as well as the relative lack of disturbance caused by cattle or other forms of parkland activity. These conditions indeed were fragile and depended entirely on continuation of the traditional management regime. The ecologists emphasised that the pedological conditions of the park in general were acidic and nutrient poor, and such conditions were "*vulnerable and declining throughout lowland Britain*"<sup>3</sup>.

Some areas of the acid grassland had declined to a lower level of ecological value, where either it had been disturbed by a relatively high level of parkland use, from heavy trampling to parking, or it was approaching a generally widespread, fertile type of grassland. Tracts of the acid grassland had been taken by the golf-course and improved to more fertile grassland (fig.4.24). The outward distribution of the acid grassland suggested to the ecologists a system of 'launds'<sup>4</sup>, that would have been maintained from the time of the initial emparkment. Yet, away from the central plateau and on the valley floors was a heavily grazed and trampled, more fertile form of

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<sup>1</sup>Based on *ibid.*

<sup>2</sup>*Ibid.*

<sup>3</sup>Quoted from *ibid.*

<sup>4</sup>*cf.* page 197

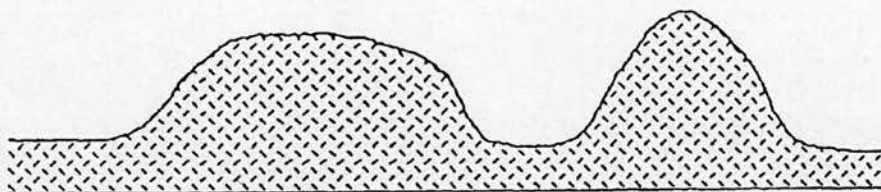
## FLOWERING PLANTS.

### Hills.

*Aira praecox* (Hairgrass).  
*Campanula rotundifolia* (Harebell).  
*Ornithopus perpusillus* (Birdsfoot).  
*Pilosella officinarum* (Mouse-eared Hawkweed).  
*Potentilla erecta* (Tormentiall).  
*Rumex acetosella* (Sheep's sorrel).

### Hollows.

*Agrostis capillaris* (Bent grass).  
*Anthoxanthum odoratum* (Sweet vernal grass).  
*Danthonia decumbens* (Heath grass).  
*Festuca ovina* (Sheep's fescue).  
*Galium saxatile* (Heath bedstraw).  
*Luzula campestris* (Field woodrush).



## MOSESSES AND LICHENS.

### Lichens (hills).

*Cladonia chlorophaea*  
*C. floerkeana*  
*C. furcata*  
*C. glauca*  
*C. pityrea*  
*C. portentosa*  
*C. subulata*  
*C. tenuis*  
*Coelocaulon aculeatum*.

### Mosses (hollows).

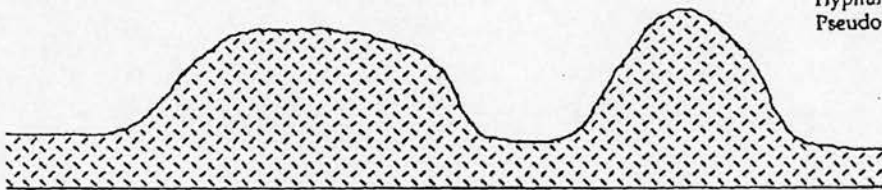
*Eurhynchium praelongum*.  
*Rhytidiadelphus squarrosus*.

### Mosses (hills).

*Dicranum scoparium*.  
*Polytricum juniperinum*.  
*Polytricum piliferum*.

### Mosses (sides).

*Hypnum cupressiforme*.  
*Pseudoscleropodium purum*.



**Fig. 4.28:** A Selection of the Flora Associated with Anthills in the "Unimproved" Ancient Acid Grassland in Knole Park (Reproduced from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, Dr. O. L. Gilbert, S. A. Williams and F. Rose, December 1988).



grassland which proved to have little inherent ecological value. The ecologists included the mown fairways and some areas of the 'rough' on the golf-course in to this category (fig.4.24). This type of more widespread grassland proved to have the potential for improving to a sward of better feeding quality for the deer, with little or no loss to the ecological capital of the park.

Bracken, forming an almost continuous belt along the woodland margins, proved to provide an useful cover and shelter for the deer, although it otherwise had little ecological value (fig.4.24).

There were nine small ponds in the park, which added an element of diversity to the landscape that had but few ecological associations (fig.4.5). The ponds, all of which appeared to have been man made, would have been a feature of the park landscape for a considerable length of time (see fig.4.17), and had been used for farming practices in the past apart from being a source of water for the deer (Appendix 4.2).

The great wall surrounding the private garden supported large fern colonies of the genus *Polypodium*, and carried rich communities of lithophytic lichens, adding considerably to its interest and appearance.

Knole had been regarded by botanists as a major site for lichens since the last century. The park had received much publicity in 1965 when a taxon of lichen then new to the British isles was discovered there. Since then, a total of 74 epiphytic lichen taxa had been recorded at Knole, elevating the park's status as a prominent lichen site perhaps of national importance. The reason for such a rich lichen flora had been the presence of many ancient to very old trees at the park, in a relatively undisturbed or semi-natural woodland setting of a long ecological continuity. However, recent studies had shown that the lichen flora at the park had considerably declined, which the scientists had attributed to the high levels of atmospheric pollution recorded in the locality in the recent past, as a result of its close proximity to metropolitan London<sup>1</sup>.

The ecological survey of 1988 did not record any really rare lichens at Knole, and the park rated the lowest in the count of ancient woodland indicator species present among eight of the richest parks for lichens in SE England (Table 4.3). Nevertheless, the fact that Knole still ranked amongst the richest sites for lichens in the area was a clear indication of its potential to be, once again, a major site for lichens, in

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<sup>1</sup>Based on the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, Dr. O. L. Gilbert, S. A. Williams and F. Rose, December, 1988.

the light of the significant fall in atmospheric pollution levels around London area<sup>1</sup>. Despite the havoc caused by the storm, the ecologists found still standing many of the ancient and old trees that had been recorded in the earlier surveys to carry rich lichen assemblages, although reduced in some cases to almost bare boles (fig.4.29). Many of these trees were found still to support viable communities of lichens that had the potential to disseminate a healthy lichen flora, first to adjacent trees and then to a new generation of trees that would be planted in the future.

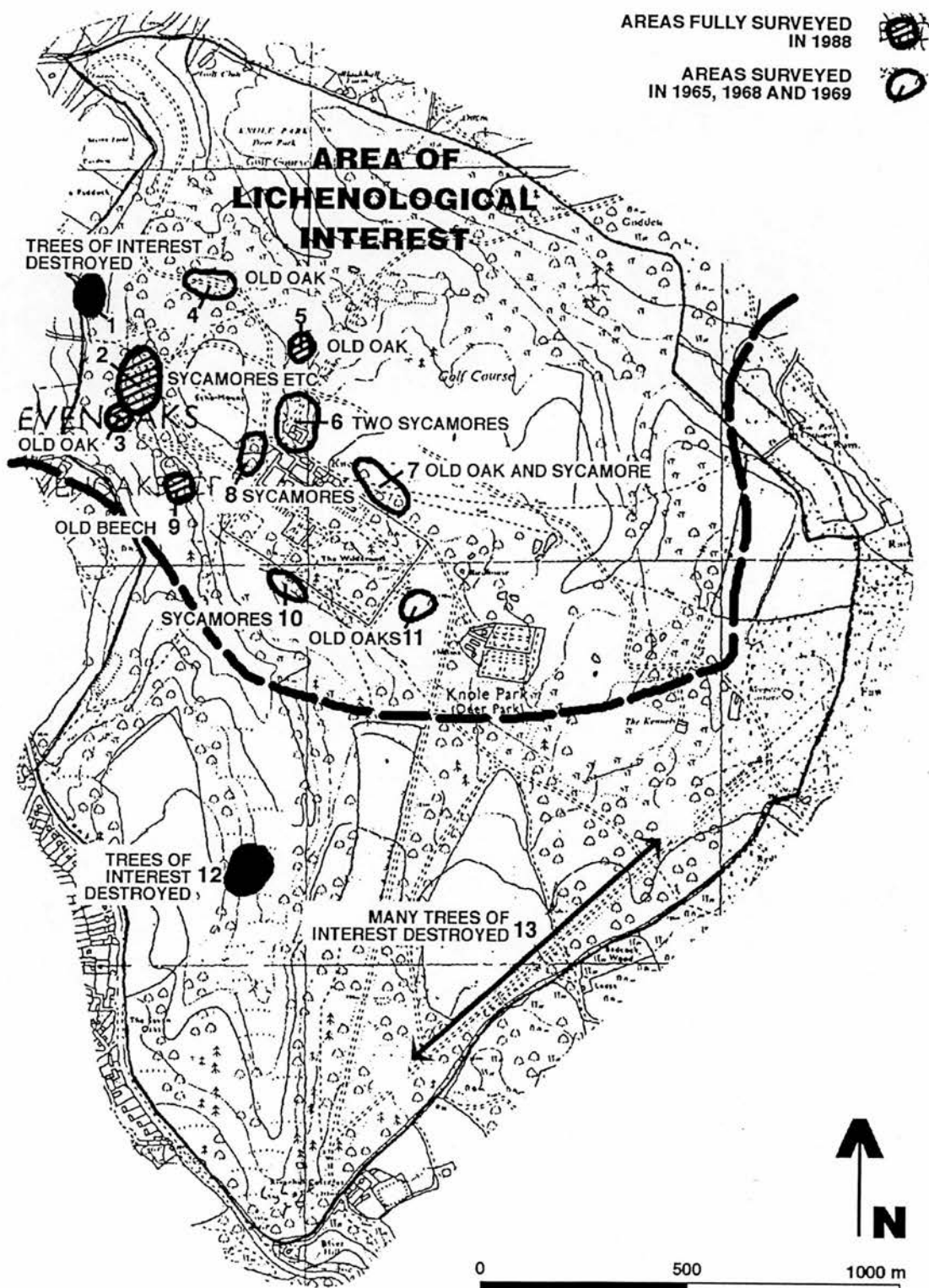
A systematic survey of lichen had never been carried out at the park, and the study in 1988 was even less representative than its predecessors in the 1960s. Yet the overall knowledge derived from all the surveys was sufficient to pinpoint that the northern half of the park, composing largely of ancient to old trees belonging to a more diverse mix of species, held the best lichen interest, while the southern half, not merely as a result of the storm damage, proved to be of little interest for lichens (fig.4.29). The main reason for this, the ecologists deduced, was that the woodland vegetation in the southern half of the park was almost totally made up of eighteenth century planting with a large proportion of beech and sweet chestnut, which were known to be poor hosts for lichen in SE England. The high ground level in the southern half maximised the exposure to air pollution. This was further aggravated by the scarcity of species more favourable to lichens such as ash, field maple and sycamore, and rarity of pollarded trees with reduced capacity to hold polluted rain. An interesting observation made here was that beech and sweet chestnut in general had been the worst affected by the storm. Pollarded trees, due to their reduced bulk, had withstood the storm remarkably well, thus preserving large colonies of lichens they carried. Old trees that were partly damaged by the storm held considerable lichen groups on their remaining limbs and boles, making it essential to prolong the lives of such trees.

The survey of 1988 did not include an exhaustive investigation of fauna in the park as such a study would have entailed a considerably longer survey period. Yet, information collated from many studies done by naturalists at the park in the recent past provided an adequate understanding of the groups of animals present. This was supplemented by detailed studies of the important groups.

The deer, indeed, were the ecologically most influential group of mammals in the park, that had shaped its ecological past and would maintain its ecological balance in the future. Their long and continuous occupation of the park was further proved by

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<sup>1</sup>*Ibid.*





the occurrence of a specialised and rare beetle fauna associated with deer dung. The high level of public accessibility to the park made it necessary that reasonably large swaths of bracken should be retained and maintained to provide shelter and cover to the deer, particularly to the fawns. Two uncommon species of bat had been recorded at Knole in the recent past. Existence of trees with hollow trunks was essential to provide roosting sites for bats.

A good population of woodland birds had been recorded to nest and breed at Knole Park, including woodpeckers, tits, nuthatches, tree-creepers, redstarts and nightjars. Knole is believed to be the last site in Kent where woodlark bred in Kent<sup>1</sup>.

The most important group of wildlife present at Knole was the invertebrates, the coleopterous animals being particularly well represented and ecologically significant. Knole had been known to entomologists for over a century as a site for beetles and flies associated with dead wood<sup>2</sup>. The ecologists collated from past records and identified in their 1988 survey some 30 species of beetle and weevil, and many flies present in the park. Among the beetles recorded, there were 1 endangered, 14 vulnerable and 15 rare species, when categorised in accordance with the rarity status for the species in the Red Data Book (Table 4.3). When evaluated as habitat indicators for ancient woodland, 4 strong and 8 good indicators were found, implying that almost half of the notable beetles indicated habitat conditions of an ancient woodland. Complex, and therefore rather fragile, life cycles of these insects involve various stages of metamorphosis that depend on an array of dead wood in different stages of decay. These range from recently damaged limbs beginning to rot or established trunk cavities, bird nests and fungal growth on standing trees to fallen timber and decaying stumps. The occurrence of various taxa of beetle at the park also followed a succession, aligned with the process of wood decay and associated with other forms of life, such as woodlice, earthworms, wood-flies and saprophytic fungi, involved in the process, each organism requiring a definite biological condition for its own life cycle. Some of the beetles or their larvae lived on deer dung or decaying bodies of other animals. The organisms together formed an intricate web of life that delicately balanced on an adequate supply of rotting wood in all stages of decay and, in the case of nectar or pollen feeding adult insects, a good supply of native flowering trees like hawthorn.

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<sup>1</sup>*Ibid.*

<sup>2</sup>*Ibid.*

The high value for the count of ancient woodland indicator species in the beetle population essentially implied that the chain of saprophytic life forms had existed and evolved at the park for several centuries. The fact that almost all the beetles recorded at the park were rare to endangered on a national rarity scale proved that the conditions required for such a delicately intricate web of life, with a relict status, were seldom present elsewhere in the country<sup>1</sup>. The singular factor responsible for preservation of such rare conditions in the park, the ecologists deduced, was a remarkable tradition of woodland management that left dead wood, dead or dying trees and stumps or fallen timber to rot where they were, over the centuries (fig.4.30, 4.31 and 4.32). This low-key practice, unexpected in the face of twentieth century precision and tidiness, appeared to have been continued throughout the park's history, thus allowing saprophytic organisms to congregate and establish the relict chain of life. So uncommon was such a tradition elsewhere in the locality that no neighbouring woodland would be able to replenish the conditions required for the saprophytes, if the tradition were to be discontinued at Knole. The ecologists emphasised that Knole was of national importance on account of its specialised habitat for the coleopterous fauna<sup>2</sup>.

The distribution of some of the notably rare beetles was found to be rather local even within the park, showing that the conditions required for them were not evenly spread. Despite the fact that adult beetles were flying insects, their habitat range never exceeded a short flight from the brood trees. The insects also showed a strong preference to dead wood of native trees such as oak and beech, as opposed to sweet chestnut, conifers or the few ornamental trees present. For the rare insects to reach sustainable population levels, dead wood of native trees should be evenly distributed throughout the park, rather than restricted to a few localities.

The ecologists described the park landscape as "*one of the few places in SE England that*" provided "*a glimpse of the structure and wildlife that was present in the ancient woodland which formally covered the area*"<sup>3</sup>. Their evaluation firmly established that the persistence of relict habitats within the park was largely due to the

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<sup>1</sup>Lullingstone, 12 km north of Knole, used to be a deer park contemporary with Knole, until it was converted largely to a golf-course in the 1950's (Talbot White J. *op. cit.*, pp.14-17 and ch.2). The ancient woodland vegetation there still supports a rich insect fauna, "*but it has not the richness of Knole*" (Based on and quoted from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, Dr. O. L. Gilbert, S. A. Williams and F. Rose, December, 1988).

<sup>2</sup>Based on the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, Dr. O. L. Gilbert, S. A. Williams and F. Rose, December, 1988.

<sup>3</sup>Quoted from *ibid.*

(A):

	Total Epiphytic lichen taxa recorded 1965-1988	Total old woodland indicator species present	Approx. area km <sup>2</sup>
Knole Park, Kent	74	4	4
Eridge Park, E Sussex	185	19	2
Ashburnham Park, E Sussex	146	14	0.1
Parham Park, W Sussex	170	13	2
East Dean Park Wood, W Sussex	80	10	0.25
Scotney Castle Park, Kent	96	6	1
Mersham Park, Kent	101	8	0.6
Lullingstone Park, Kent	64	7	0.5

(B):

<i>Plegaderus dissectus</i>	H2 R2	1	1 under bark which is
<i>Ptenidium gressneri</i>	H2 R3	2	fairly tight to the tree
<i>Stenichnus bicolor</i>	H3 R3	3	
<i>Euplectus punctatus</i>	H1 R2	3	
<i>Trichonyx sulcicollis</i>	H2 R3	3	2 rot holes
<i>Stenagostus villosus</i>	H3 R3	3	
<i>Ptinus subpilosus</i>	H2 R2	1	
<i>Carpophilus sexpustulatus</i>	H3 R3	1	3 rotting, crumbling trees
<i>Pediacus depressus</i>	H2 R2	1	
<i>P. dermestoides</i>	H3 R3	1	
<i>Silvanus unidentatus</i>	H3 R3	1	4 oak that has decayed to
<i>S. bidentatus</i>	H2 R3	1	the consistency of
<i>Biphyllus lunatus</i>	H3 R3	5	gingerbread
<i>Cerylon fagi</i>	H3 R2	1	
<i>Mycetophagus atomarius</i>	H3 R3	5	
<i>Scynchita separanda</i>	H1 R1	1	5 Associated with fungi
<i>Cicones variegatus</i>	H2 R2	1	
<i>Bitoma crenata</i>	H3 R3	1	
<i>Pyrochroa coccinea</i>	H3 R2	3	
<i>Orchesia undulata</i>	H3 R3	)	rotting wood or loose
<i>Phyloctrya vaudoueri</i>	H2 R2	)	bark with fungus present
<i>Prionus coriarius</i>	H3 R2	1	
<i>Leptura scutellata</i>	H1 R2	1	
<i>Phloeophagus truncorum</i>	H1 R2	1	
<i>Platypus cylindrus</i>	H3 R3	1	
<i>Quedius microps</i>	H3 R2	2	
<i>Dorcatoma flavicornis</i>	H3 R2	4	
<i>Xestobium rufovillosum</i>	H3 R3		burrows deep in firm dead wood
<i>Epuraea angustula</i>	H3 R2	1	
<i>Trypodendrum domesticum</i>	H3 R3	1	

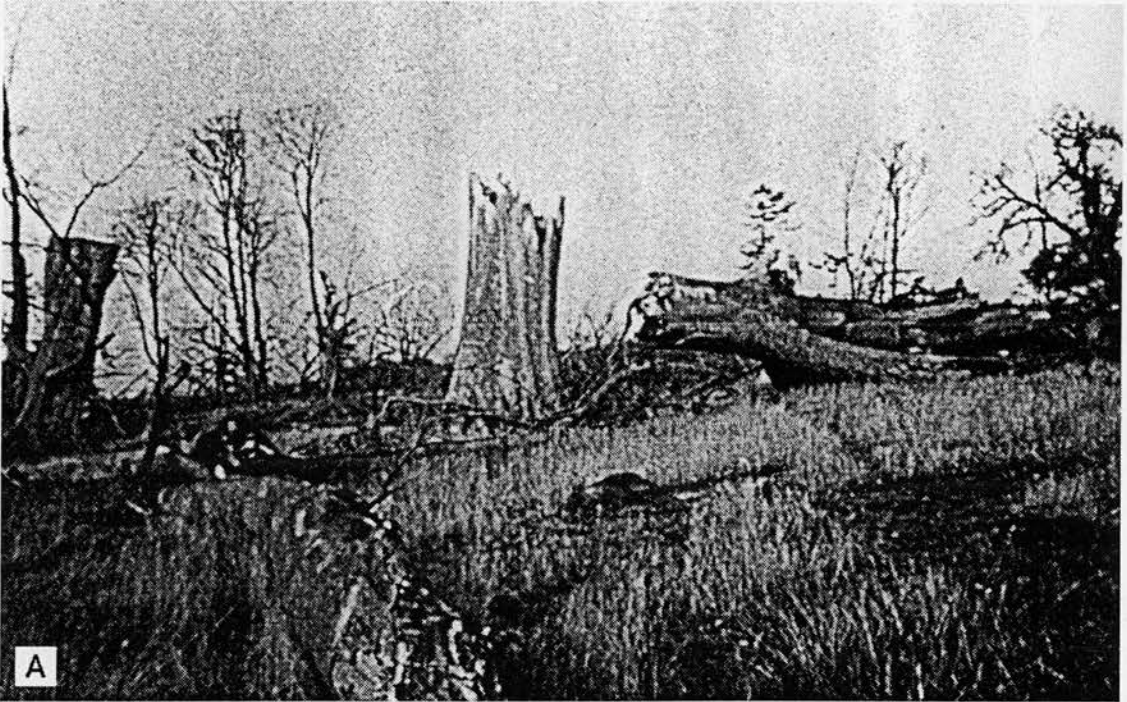
Habitat indicator for ancient woodland. H1 strong; H2 good; H3 weak  
Rarity (red data book). R1 endangered; R2 vulnerable; R3 rare

**Table 4.3:** (A) - Numerical Comparison of the Lichen Floras in Eight of the Richest Parks for Lichens in SE England and (B) - National Rarity (Red Data Book) and Indicator Value for Ancient Woodland (Nature Conservancy Council Convention) of the Notable Beetles Present at Knole Park (Reproduced from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, December 1988).





**Fig. 4.30:** (A) - Ancient Oak Pollard Near Godden Wood with Much Dead Wood in the Crown and (B) - Detail of the Trunk of the Above with Large Decaying Cavities Supporting a Wide Range of Fauna, from Nesting Birds and Bats to Rare Insects (Reproduced from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, December 1988).



**Fig. 4.31:** (A) - Fallen Trunks and Standing Stumps of Large Dimension Provide Particularly Valuable Habitat for Beetles Characteristic of Ancient Woodland and (B) - Rotten Wood at 'Gingerbread State' Supports Rare Beetles Not Present Elsewhere in the Park (Reproduced from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, December 1988).





**Fig. 4.32:** Stumps and Timbers of Various Stages of Decay are Required to Sustain the Saprophytic Fauna at the Park. Replanting Hardwoods Round Such Features Would Not Diminish their Value (Reproduced from the Ecological Survey Report on Knole Park by Environment Consultancy, University of Sheffield, December 1988).



generally low management input the area had received over several centuries, as a result of the park's continuous adherence to a set of land use practices, now seldom used elsewhere in Britain. The overall recommendation by the ecologists therefore was that changes to the park's long established patterns of land use and vegetation should be proposed with caution.

The past management of woodland areas in the park proved to have been low-key and arbitrary with no set plan of harvesting, replanting or thinning on a regular basis to generate a steady income from the sale of high quality hardwoods. This lack of an aggressive forestry management policy had been crucial in preserving the wildlife interest. Particularly important was the absence of hygienic practices of clearing dead wood and senescent trees. The ecologists recommended that there should be no drastic change in the policy regarding species selection, long term woodland management or tree hygiene in the restoration proposals, that were going to generate undoubtedly the greatest forestry activity the park had ever seen. Forestry objectives for a large part of the park could be the production of high quality hardwood timber of exceptional girth by long rotations. Continuous cover forestry and free growth forestry practices would be beneficial to the wildlife capital. In accordance with such a policy, the blocks of coniferous plantations, left behind by the failure of beech, could now be converted by other means to stands of native deciduous trees. Sweet chestnut, which had proved to be poor tree for both invertebrates and lichens, could now be reduced in frequency by increasing the number of more favourable species such as oak and beech. Beneficial, especially for lichens, would be an increased frequency of ash, field maple and sycamore in sheltered locations. It was essential for the rare insects that hawthorn should be planted, scattered along the valley margins. The woodland would also benefit from the introduction of trees such as birch, rowan and crab-apple at the margins, and hazel where appropriate<sup>1</sup>. A coherent planting policy extended to the golf-course would provide an opportunity to redress the present anomaly of ornamental cultivars of tree on the course, by replacing them with native flowering trees, such as hawthorn, crab and rowan, that would greatly benefit the insect population.

For the outstandingly rare insect fauna and the associated saprophytic life forms there was no best place in the park that could be set aside. The ecologists emphasised that the park should be treated as a whole in maintaining this rather specialised habitat. Trees and limbs should be left to rot where they fall. Stumps and

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<sup>1</sup>Largely quoted from *ibid*.

shattered trunks should be left standing, large pieces of wood being particularly valuable. This recommendation was a matter of urgency as a large quantity of storm damaged timber had been already cleared away within the first year of the unprecedented clearing operation. Much of the saleable timber had been removed, and the ecologists noted with alarm that contractors had taken to burning piles of wood. They strongly recommended that further clearance should be limited to areas where there was a public safety concern or where fallen timber or damaged trees would clearly prove to be obtrusive or aesthetically unpleasant. Burning of timber or debris should never be allowed as this could cause long lasting damage to micro-organisms and fauna, in addition to destroying a useful source of dead wood. The ecologists illustrated by example in their report the types of decaying wood required, and that planting hardwoods round such features would not diminish their value.

The relict acid grassland on the central plateau was to be totally protected from any kind of improvement or disturbance, the present level of light deer grazing being the solitary form of management required. Any parkland activity involving heavy disturbance, such as fêtes, shows, extra car parking, marquees and kiosks, should not be allowed on the fragile acid grassland. Instead, such activities could be accommodated on the fertile type of grassland and the acid grassland of lower quality (fig.4.24). The acid grassland and the associated ancient pollards should be protected from any possibility of change in the soil pH level. The ecologists noted the danger of agro-chemicals used on the golf-course greens spreading to the adjacent area of the relict grassland. Almost a third of the acid grassland and a number of pollard oaks had successfully survived so far the incorporation into the golf-course as part of the 'rough'. While it was essential that the course layout should not be altered in a way that would reduce the area of the valuable grassland, care should be taken not to contaminate the trunks of the pollards or the acid grassland when applying agro-chemicals on the greens. To help maintain the fragile, acidic and nutrient poor conditions in the park, fertiliser should be applied only in slow releasing, granular or pellet form, so as to prevent any chance of airborne drift or leaching.

Fallen trunks, stumps and damaged, but standing trees that were recorded to carry interesting lichen communities with potential to colonise other trees needed urgent protection from clearing operations, since many such trees had already been removed. As much as possible of what was left of these should be left where they were to decay, as part of the requirement for saprobiotic organisms. Where public safety would be a problem, such partly damaged trees could be rendered safe by surgery and pollarding, which would enhance the lichen communities. In the same

way, high standing boles of totally damaged trees could be left to allow lichens to spread, and provide niches for saprophytic fungi, birds and other life forms. Part of the future woodland management policy should be to revive the discontinued tradition of pollarding newly planted trees at maturity. The ancient oak pollards were now beyond their resilience to the same practice which prolonged their lives in the past. Instead, what was left of their life span should be enhanced by less aggressive, cautious and preventive methods of management. Where planting was proposed close to such ancient pollards, care should be taken to minimise any spatial competition and to prevent their lichen-bearing trunks from getting shaded or falling within the drip-lines of such new planting.

Many areas of the fertile type of grassland, particularly in the valleys, could be improved for better feeding conditions for the deer, without threatening the ecological capital of the park. In such areas the width of bracken could be reduced to widen the grassland. In low-lying valley grasslands, the sward could be improved by the use of slow releasing fertilisers, preferably in pellet form, and other mechanical methods where required. The ecologists clearly identified such areas of grassland suitable for improvement (fig.4.24).

The ecologists noted the threat of common rhododendron, presently restricted to a few clumps in the north-east of the park, spreading widely through seed in the future, aided by the soil disturbance the timber extraction was causing, coupled with the increased light at the woodland ground level. Any further spread of this invasive species would be damaging to the ecological balance of the park, and therefore constant surveillance to eliminate rhododendron seedlings at an early stage should be an essential part of the future management policy.

So inseparably linked was the park's archaeological value to its ecological value, that the key to the perpetuation of the park's ancient character lay invariably in the measures required for the preservation of its ecological assets. The recommendations by the ecologists therefore proved to provide the basic framework from which the restoration policies could be formulated and long-term management strategies could be drawn. Here, the responsibility of the landscape architects was to adopt and develop the recommendations into a coherent restoration plan that would accommodate the needs and views of the park users and parties involved; well balanced with the conservation needs.



## 4.5 Deer and Their Management

As stressed by the ecologists, the deer were virtually the traditional keepers of the park. Therefore the restoration plan should seek to sustain the well-being of the deer as a primary policy. Having studied the health, the feeding conditions and the management of the present deer herd, the deer consultant put forward a set of recommendations that were to form the future management policy. The aim of the policy should be to continue the traditional technique of managing deer as a herd running loose with access to as much of the park as feasible, while seeking to update methods so that management would be self-sustaining (Appendix 4.3). Yet, the inevitability of having to enclose large areas of the park for a fair length of time for new planting would pose an initial set-back to such a policy. The considerable reduction in the deer feeding range would cause the slightly under-nourished herd to be an even bigger drain on the resources, both landscape and financial, with a heavier winter feeding requirement. The large capital cost of deer fencing and tree guards required would not be offset in the short-term by possible future benefits of a self-sustained deer herd.

The deer consultant advised that the fertility rate of the herd needed to be considerably increased to reach a self-balancing management budget. This could only be achieved by substantial improvements to the feeding quality of the grassland areas recommended as suitable by the ecologists. Where it would be ecologically safe to do so, the grassland should be enhanced by soil improvements, re-seeding with a better mixture of grasses and herbs with a more steady growth pattern, enrichment with nutrients other than nitrogen in pellet form, and liming where absolutely safe. The more grassland of this type made available, the better the health of the herd. Any opportunity to increase the fertile type of grassland by glades in the woodland areas was to be fully used. Glades of irregular form would be more preferable to the deer, and such areas would also provide additional shelter for them. This could be combined with rotational enclosures to produce flowery, hay meadows for the winter feeding requirement. Long and continuous swaths of bracken should in the meantime be maintained to provide shelter and protection for the deer. However, unnecessarily broad swaths should be reduced in width and controlled in a regular regime to avoid further spread into the grassland. The same regime could be used to eradicate any unwanted colonies of bracken, especially on the acid grassland area. Stocking of the park in the future should be lighter than the standard 1 deer per acre (0.4 ha), as required by the poor feeding conditions. However, constant vigilance would be

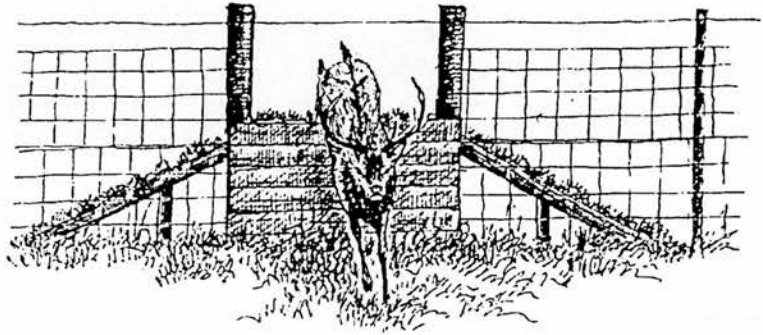
necessary to spot signs of over grazing, so as to keep both the deer and the park resources in good condition. No other grazing stock should be introduced, as it would antagonise the deer. Similarly, no red deer should be reintroduced to the park, following the removal of the remaining few (Appendix 4.3). The future stock, therefore, should be made up of 85% fallow and the remainder, Japanese sika.

Protection of the trees to be newly planted would require a range of deer fencing and guards with deer leaps at regular intervals on long fence lines and a variety of gates and stiles for the park users (fig.4.33). Each individual tree or specimen planted would need a special deer guard for protection. To establish small clumps of tree, a circular shape of enclosure would be appropriate, as deer would avoid jumping into circular enclosures as opposed to square ones. Additional deer leaps would be required along the perimeter fencing of the park, so that the odd deer escaping from the park would be encouraged to rejoin the herd. A future rotation pattern for thinning of newly established woods, including 'lop and top' of individuals or clumps could provide an additional source of feeding for the deer. The same rotation cycle could open up wooded areas for grazing, when sufficiently mature (Appendix 4.3).

#### **4.6 Golf-course and Other Park Uses**

The estimate provided by the golf club was that a maximum of 70 players were using the golf-course at any given time, and as such, up to 200 rounds were being played in a 12 hour day. The course was considered to be of high quality, due to its naturalness, beauty and the fine turf characteristic of sandy subsoil. The club had a long waiting list for membership. A recently adopted turf management policy, closely following guidelines given by the Sports Turf Research Institute in 1986 and 1988, aimed to produce a tighter course in the future, with generally narrower fairways and more 'rough'. This particular development would allow sufficient flexibility for the preservation of the areas of ancient acid grassland forming parts of the 'rough'. Similarly, swaths of bracken would be acceptable on areas of the 'rough'. Trees between fairways, sometimes placed as obstacles to ill-directed strokes, were an integral part of the course. The club agreed in principle to pursue a tree planting programme on the course coherent with the future overall policy for the park. Tree stems should however be more than 9 m clear from the greens. The club accepted as inevitable the disruption to play caused by the unlimited public access to the park, particularly children wandering through the course at weekends. However, the club was to welcome any measures to ease this conflict.

A



B

**Fig. 4.33:** Examples of Two Deer Leap Types, (A) - on Level Ground, and (B) - Taking Advantage of a Natural Step in Levels, Recommended by the Deer Consultant for Knole Park Restoration Scheme ((A) - Reproduced with Kind Permission from Messrs. Colvin & Moggridge; (B) - Reproduced from Prior R. *op. cit.*, p.71).



Knole Park had, by tradition, evolved to be effectively the town park for Sevenoaks residents, as well as a valued recreational space for public at large. Therefore, the restoration policies had to address to a reasonable extent the needs and, particularly, the safety of the public. The network of statutory and other footpaths through the park should be maintained in a good condition, yet not incongruous with the character of the park. Many of the main tracks had been finished with a macadam surface with a municipal character which did not accord with the general medieval character of the setting. Some of the main paths giving access to dwellings in the park however needed such a finish. The peripheral gates and stiles also needed improvement to a more inviting quality. Co-operation of the National Trust was needed to improve the quality of the gates at the central area. An additional set of kissing gates and stiles was required to maintain the access through the areas that would be internally enclosed for future plantations. Public safety was to be an important issue to deal with when providing sufficient dead wood throughout the park for the wildlife. The areas of the park frequently used by the public, footpaths and tracks in particular, should be rendered safe by removing dangerous wood and limbs, in a regime slightly deviating from what would be ecologically appropriate for more remote, wooded areas. The conflict arising from public access through the golf-course would not be easily resolved by any designed details consistent with the park's ancient character. It was rather a matter to be solved through co-operation among the parties involved.

*"Car parking and kiosk arrangements, organised by the National Trust" were "ill-considered, a lumpish cabin and sprawl of cars spoiling the classic view of the west front of Knole House" (fig.4.20) "and the view out into the park from Green Court" of the house. This was "a disappointing contrast to so rich and carefully kept an interior."*<sup>1</sup> Although these arrangements were only temporarily required for the short summer season of opening the house to public, it was necessary to negotiate better thought out provisions with the National Trust, as visitors to the park usually reached their highest numbers during these months. *"Perhaps, the small area of the park owned by the Trust" could have "been a limitation."*<sup>2</sup> Restoration policies affecting the area managed by the National Trust would need the agreement and the approval of the Trust.

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<sup>1</sup>Quoted from the report by the landscape architects: The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate, Colvin & Moggridge, July 1989.

<sup>2</sup>*Ibid.*

The needs and interests of the Sackville family, as the owners and primary users of the park should be addressed in the restoration plan. The low-key management policy, recommended by the ecologists to affect much of the park, had the advantage of being financially viable in the long-term. The reduction to the clearing operation of the storm damaged wood favoured by the ecologists would also be a financially attractive option for the family, burdened with the large capital cost of restoration. However, the area around the house enclosure, the park driveways and lodges regularly used by the family would need to be kept neater than the wild character appropriate for much of the park. The sense of enclosure and privacy of the central area around the house enjoyed by the family for generations had been destroyed by the storm, exposing undesirable views of recent housing and large buildings of Sevenoaks along the south-western boundary and also recent road development in the north-east. Similarly, widespread storm damage to woodland cover in the southern part of the park had destroyed the sense of seclusion the Sackville family, and park users at large, had enjoyed in a medieval parkland atmosphere untroubled by the changes outside. Reinstatement of this sense of seclusion was therefore to be a primary objective of the restoration plan.

#### 4.7 The Concept for Park Restoration Plan

The landscape architects now had adequate and precise assessments of the park's historical value, ecological value and land use value, the latter expressed as a combination of the value of the park's traditional land use pattern and its future resource potential. The success of any restoration plan would depend upon the way these evaluations were transcribed in landscape terms and assimilated into the park's landscape value to give an all-embracing and coherent conceptual framework.

In pursuing this goal, the landscape architects adopted the principle that: "*The future of a landscape is an extension of its past.*"<sup>1</sup> Knole's past had been a gradual continuum of accumulative adaptation, that had made its landscape survive "*all the vicissitudes of changing fashion*"<sup>2</sup>, while subtly accommodating the modifications required for its existence. What had descended from the Middle Ages was therefore not a landscape frozen in time, but rather "*the type of forestry and deer herd management, the landscape equivalent of the choirs of New College or King's College, ever evolving without fundamental change.*"<sup>3</sup>

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<sup>1</sup>*Ibid.*

<sup>2</sup>Talbot White J. *op. cit.*, p.27

<sup>3</sup>Quoted from the report by the landscape architects: The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate, Colvin & Moggridge, July 1989.

What was aesthetically appreciable as the medieval essence of Knole Park was therefore brought about by *"its continuity and visible signs of age as venerated characteristics."*<sup>1</sup> Talbot White<sup>2</sup> described the sense of place at Knole as an *"impression of being transformed into a medieval landscape"*, in *"the quiet of one of the largest and most visually rewarding parks in the county"*, *"the pleasure"..."heightened by the realisation that the mature landscape that we enjoy has its roots deep in the past"*. To a less informed visitor, the experience of Knole would be a feeling of unexpected remoteness reminiscent of the past, rendered by the unadorned and informal appearance of the park:

*"The landscape produced by a deer park is ideal for human use. The deer browse away all the plants into which it is unpleasant to stumble, such as nettles and brambles, and eat off obtrusive lower branches from trees. The result is open woodland, gentle to touch, easy to walk through. It is a ragged looking landscape, where autumn bracken, fallen branches and old trees tumble together over irregular ground mottled by light shining through the gappy tree canopy. It is a landscape untroubled by the sense of order and control sought by subsequent ages of reason and scientific precision. Yet, the land-form of Knole imposes a strong organisation into the park. The result is a poetic, a picturesque place where sparse management produces an informal appearance."*<sup>3</sup>

Despite the destruction wrought by the storm, several low-lying areas of the park had remained virtually unaffected to exemplify this picturesque character reminiscent of the park's medieval past (fig.4.34 and 4.35). Knole House had been described by Sackville-west<sup>4</sup> as *"the most English house"* and *"not an incongruity like Blenheim or Chatsworth, foreign to the spirit of England"*, but *"rather, the greater relation of those small manor-houses which hide themselves away so innumerable among the counties"*. The irregular and unkempt forms of the avenues, with their gnarled and twisted, venerable old trees, gently ushered the modest authority of the house and its owner to remoteness beyond, the few ornamental buildings, clustered together, humbly directing the flow of this harmonious association. The golf-course blended adequately into the sinuous valley form. Dotted about in the park landscape,

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<sup>1</sup>*Ibid.*

<sup>2</sup>Talbot White J. *op. cit.*, p.13 and 27

<sup>3</sup>Quoted from the report by the landscape architects: The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate, Colvin & Moggridge, July 1989.

<sup>4</sup>Sackville-West V. (1947) *op. cit.*, p.18





**Fig. 4.34:**  
 Areas of Knole Park  
 Less  
 Damaged by the Storm  
 are Still Fine Examples  
 of the Severe Beauty  
 Reminiscent of Knole's  
 Medieval Past. Here,  
 the  
 fallen timbers and trees  
 with damaged branches  
 are absorbed into the  
 character of the scenery.  
 (Reproduced with Kind  
 Permission from  
 Messrs.  
 Colvin & Moggridge)





**Fig. 4.35:** A Limited Number of Vegetation Types, Each Striking in Colour and Texture Give Knole Park a Severe Beauty.  
 A - The open, golden grass plateau near the centre of the park, on which the house stands and B - Rifle Range Valley exemplifying the sinuous forked valley system, falling from wooded high ground and fringed by swaths of bracken. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

casually and seemingly at random, were the features of the past which generated, in the minds of the locals and the park owners alike a sense of familiarity and nostalgia.

*"The beauties of the park" were "the sight of trees passing through the whole process of life right on into gnarled collapse, when a few living branchlets" would struggle "into spring leaf from a massive fallen trunk or a standing stump"*<sup>1</sup> (fig.4.36). An essential part of the park's history had been the continuous presence of such crumbling and decaying creatures, some of which had attracted much interest in the past (fig.4.23 and 4.37). This had maintained the park's link with the ancestral 'wildwood', adding greatly to its present ecological value through for example its rare saprobiotic beetle population. *"Beetles and people", observed the landscape architects, "seem to share the same environmental tastes, the former as a life source, the latter poetically."*<sup>2</sup> Preservation of this ancient character, in other words the park's landscape value, should therefore result in the spontaneous conservation of its archaeologically and ecologically interconnected heritage.

The application of this principle to the storm damaged landscape produced the basis of the conceptual framework required for restoration. The low-lying areas and the central plateau less affected by the storm would be maintained in the park's traditional management style, with a touch of initial restoration planting and slight modifications to the future management regime. The high ground devastated by the storm in contrast would need complete renewal and several years of a more intensive management regime, until it would mature and merge with the rest of the park (fig.4.38).

From this basis, the restoration concept was further developed to achieve the broad spatial organisation appropriate for the restored future landscape. The natural topography of the park landscape had predetermined its spatial organisation, the four major vegetation zones closely following and accentuating the richly complex land-form. While an irregular and complex mosaic of ecological associations had evolved within each of these over the centuries, the zones themselves had in landscape terms merged with one another at their interfaces producing three different landscape zones, each distinct from the other in its character and visual quality, and therefore needing a different landscape design treatment. The landscape architects broadly classified these as grassland, parkland and woodland (fig.4.39). The tree canopy of the future, which would be a blend of the existing and the proposed, was to be ordered as the main

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<sup>1</sup>Quoted from the report by the landscape architects: The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate, Colvin & Moggridge, July 1989.

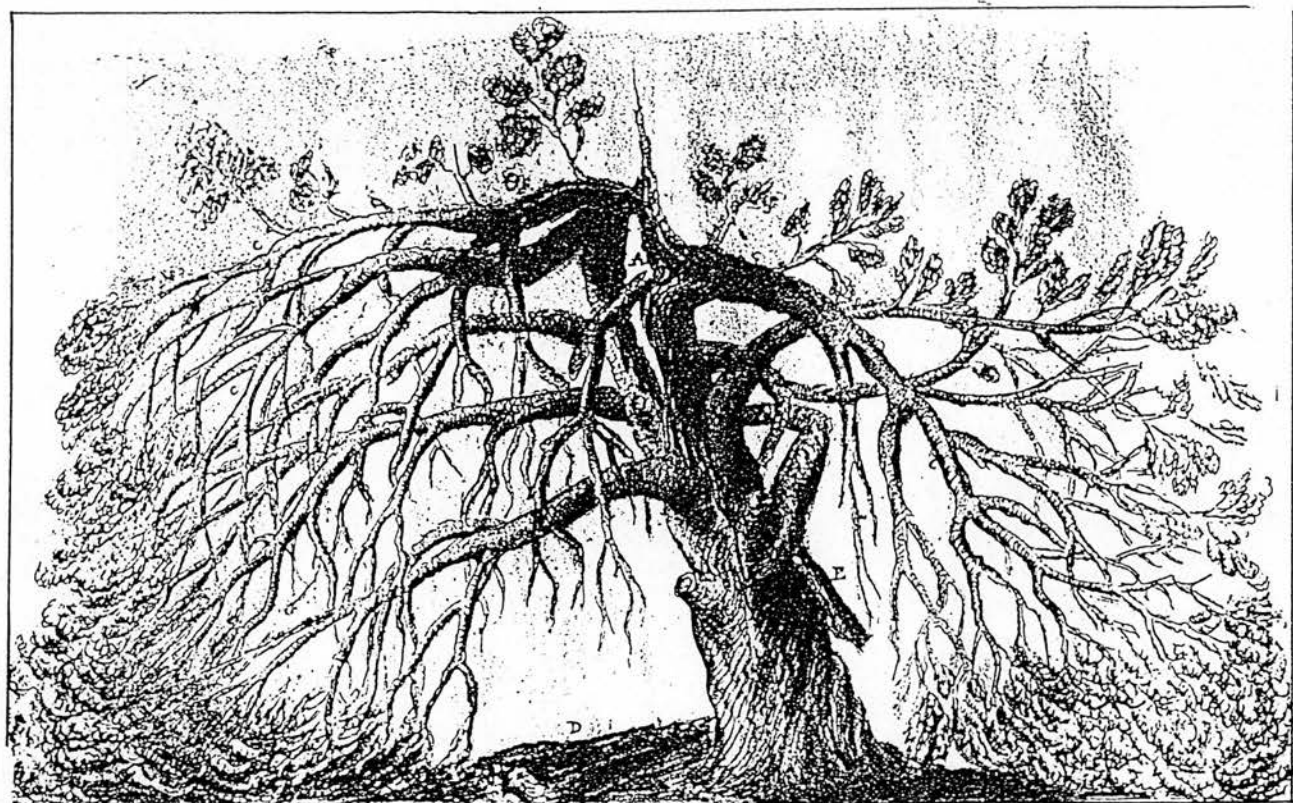
<sup>2</sup>*Ibid.*





**Fig. 4.36:**  
The Awesome Picturesque Beauty of Venerable Old Trees in Gnarled Collapse at Knole Park Render an Authentic Atmosphere of Antiquity; Beacuse Such Timber has Stood and Lain in the Park for at least Five Hundred Years, It has Become a Specialised Habitat for Rare Wildlife. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)



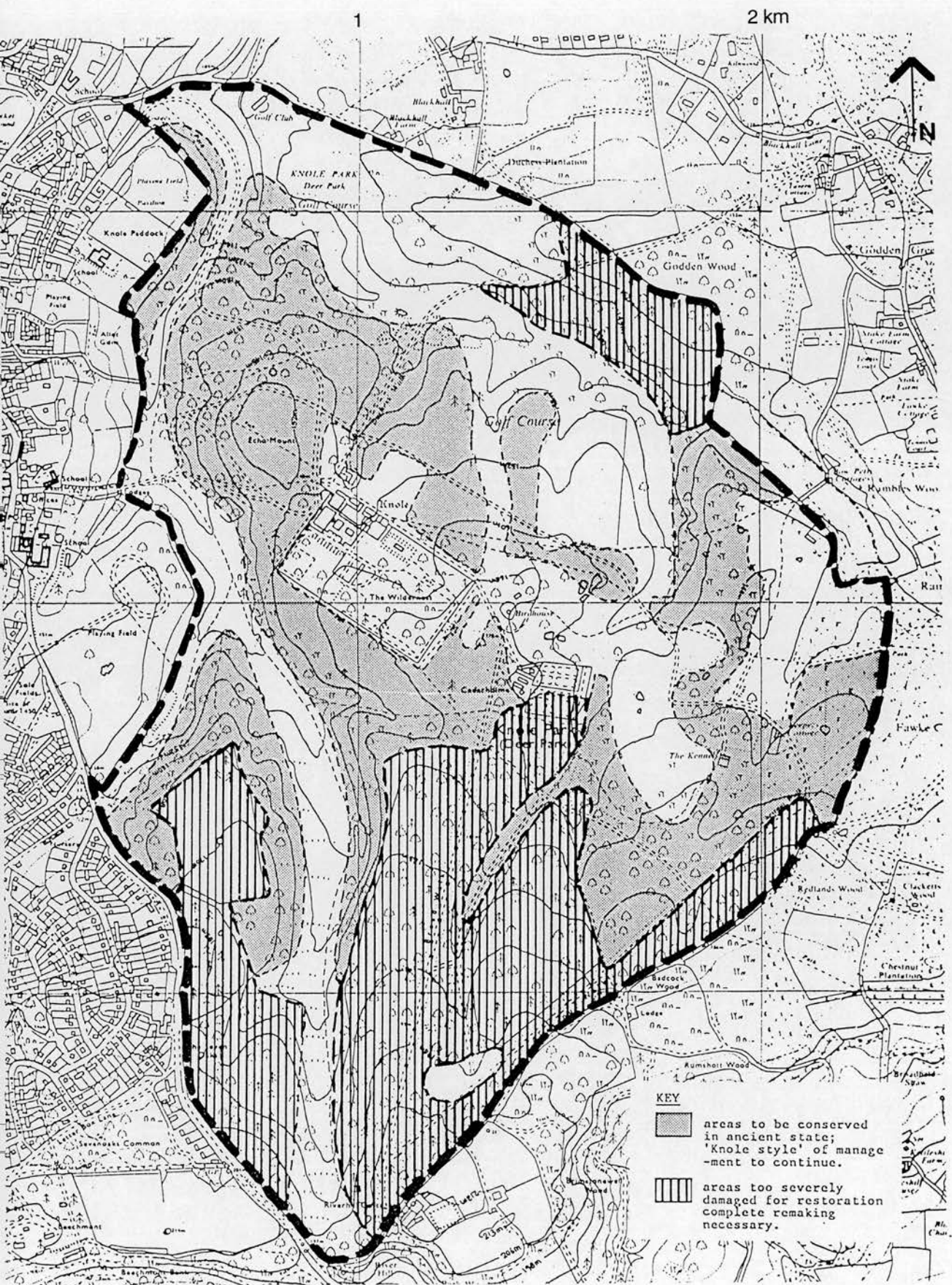


A View of the GREAT OAKE in KNOLE PARK, Destroy'd by LIGHTNING, the 30<sup>th</sup> of July 1764

*REFERENCES* : A: Where the Lightning enter'd, and Split the Tree down to B. C C The top and Leading branches torn asunder and hang near appaareth. D: Shiver, measure nine feet eight inches in length, and girth 3 feet 2 inches, Drove out with great Violence and found convey'd of 10 feet of the Tree to y<sup>e</sup> ground; lying at a great distance, from 4 to 5, and 4 feet long, the ends of which appear'd like Hemp, that had been beaten in a Mortar: E splinter, that was forc'd out & wedg'd in a cleft: G Represents the twist'd and Shiver'd part of the Bark: the Lightning not having quite sever'd

**Fig. 4.37:** An Old Print Exemplifying the Appreciation of Old, Damaged Trees in the History of Knole Park (Source Sevenoaks Library Archives).





**Fig. 4.38:** The Basic Concept for Restoration of Knole Park (Reproduced with kind permission from Messrs. Colvin and Moggridge).





space defining element. Broadly, the grassland would be open and punctuated by carefully placed specimens or clumps of trees. The parkland would comprise the valley floors with their sides irregularly open with bracken edges and lightly wooded to emphasise the sinuous land-form, and with sparse open-canopied woodland on higher ground. The woodland would be a closed canopy, achieved by substantial planting on the high ground in the south. Within each of these landscape zones, the vegetation types and their intrinsic ecological associations, existing and proved to have existed before the storm, would be treated in detail, by preservation or planting and other forms of physical design where required. The traditional management regime would be appropriated or adapted as applicable, aiming to preserve, reinstate or recreate the contribution of these vegetation types to the ancient character of the park landscape.

The recommendations of the ecologists proved valuable in developing this concept towards a sound master plan for restoration, for the methods they proposed for preserving the ecological assets served as ways in which the character and the visual quality of each vegetation type could be reinstated. These, when balanced with the equally valuable recommendations by the deer consultant and the needs of the park users, provided the basic policy required for detailing the extent, the structure and the composition of each vegetation type and for formulating strategies for the short and long-term management of the park vegetation.

The restoration concept so far served to devise only the broad spatial organisation required for the restored landscape and the aesthetic quality of the key elements contributing to the landscape character of the three broad spatial zones. A more refined spatial structure, within each of these zones and linking the zones with one another, was then needed to formulate the master plan for restoration. Working within the concept that the tree canopy of the future would be the main space defining element, the landscape architects carried out a thorough visual analysis of the park landscape.

Knole Park, being so large -some 3 km long and 2 km wide- and so complex in land-form and the associated woodland structure, had produced an intricate spatial hierarchy, ranging from totally enclosed spaces to wide open ones obtaining in some cases panoramic views of the landscape outside the park (fig.4.43). The spaces exclusive to the scenery of the park landscape had the appropriate visual quality of seclusion within an ancient atmosphere; they would open to a quiet valley-head or would occasionally reveal glimpses of Knole House framed in trees (fig.4.42). The

visual quality of the more open spaces, in contrast, depended on a wide range of scenery and features outside the park. The park landscape harmoniously merged with much of the predominantly rural landscape that surrounded it in the north, east and the south. Therefore, the views of this expanse of the wider landscape, especially of the North and South Downs were generally appropriate and important for the ancient character of the park landscape. However, the storm damage had made some of these far too extensive, exposing in a few cases inappropriate views of modern developments, such as the road lights of M 20 climbing the North Downs (fig.4.1 and 4.44). In contrast, much of the recent development in Sevenoaks, now exposed to view in places along the western fringe of the park, degraded the visual integrity of many important spaces, particularly on the central plateau and the high ground in the south.

A decisive policy was required to define the extent to which the park landscape should be visually, and therefore spatially, integrated to the wider local landscape. This should provide a balance between the extremes of the total seclusion of the park, metaphorically as an oasis, and the uncontrolled visual integration with the world outside, the outcome of which would determine the character of the park landscape for centuries to come. Here, the visual appraisal should not only take into account the existing development around the park, but all the possible trends for future development, for example the proposed Sevenoaks bypass. (fig.4.10).

The analysis by the landscape architects revealed a set of key views, both desirable and undesirable for the visual quality of the park landscape (fig.4.40). The storm had not only exposed inappropriate views of features and areas outside the park, but had also opened up many surprise views within and without the park. Closer examination of some of these views unveiled the traces of an earlier glade structure, running irregularly through the woodland, some focusing to open valleys of the park (fig.4.42), the others framing views of the distant hills (fig.4.41) or, in a few special cases, permitting glimpses of the chimneys and towers of the house (fig.4.42). The glade structure appeared most likely to have evolved through the centuries as part of the grazing pattern of 'launds' that would have been maintained in the eighteenth century woodland planting, rather than the result of an overall scheme of parkland design deliberated in the eighteenth century.

The heavy storm damage to woodlands in the upper park had newly revealed some highly desirable views. From some eminences of the Broad Walk and the Chestnut Walk, fine views of the brightly lit, low-lying areas and the valleys could be







**Fig. 4.41:** Glades Through the Storm Damaged Pasture Woodland at Knole Park, Focusing to Distant Hills of the North Downs (Views 2 and 3: Fig. 4.40).





**Fig. 4.42:** Views of a Quiet Valley Head Glimpsed Through Open Pasture Woodland (View 5: Fig. 4.40) and Chimneys and Towers of the House Framed in Trees at Knole (View 4: Fig. 4.40). The proposed painting is intended to make these more dramatic.





**Fig. 4.43:** Above: Key View Through the Storm Damaged Landscape of Knole, Showing the Visual Compatibility of the Tower of the Medieval Parish Church of Sevenoaks, in Contrast to Various Town Buildings Newly Exposed Due to the Storm Damage (View 6: Fig. 4.40)

Below: Panoramic View of the Eastern Part of the Central Plateau with the North Downs as Backdrop (View 7: Fig. 4.40)





**Fig. 4.44:** A Wide Panorama of the North Downs (View 8: Fig. 4.40) and a Radio Transmission Aerial (View 9: Fig. 4.40) Exposed to View by Storm Damage to Woodland at Knole Park. The woodland planting will screen the top undesirable view leaving a glimpse through to the valley head on the left, while the view of the downs in the bottom photograph will be made dramatic by a glade through the proposed planting.



**Fig. 4.45:** View of St. Nicholas Parish Church of Sevenoaks; Only Desirable One Among Parts of the Town Exposed by the Storm Damage (View 10: Fig. 4.40). This will be maintained as an irregular glade through close-canopied woodland.



obtained, often made dramatic by shapely escarpments of the North Downs as a backdrop (fig.4.44). Such views would enhance the visual quality of these, otherwise laterally confined, linear spaces (fig.4.40). One such opportune revelation of the storm damage were the views of Sevenoaks parish church tower, now obtainable from Broad Walk and several other positions of the park (fig.4.40 and 4.45). The stately tower of the medieval church was the only built feature contemporary with Knole, and therefore compatible with the park's character, that could be seen amidst the development exposed of Sevenoaks, and maintaining this particular view throughout the park would strengthen the visual integrity of the park with its local landscape (fig.4.43). The storm had also revealed some fine views of the house from open valley floors and low-lying areas at close range. These views would enhance the visual communication between the house and the various spaces of the park. Some of the views to the house took advantage of the grilled openings in the garden wall, the case being the same for views from the house and the gardens to outer park spaces. The future restoration of the garden should therefore be co-ordinated with the spatial policy devised for the outer park in order to maintain this visual integrity. Meanwhile, the quality of the views previously enjoyed from the house, particularly from the higher floors, was now marred by newly exposed inappropriate features. The planting policy around the house and along these view lines was to take this into account (fig.4.40).

Seeking to make their appraisal less subjective, the landscape architects compared the key views they had identified with descriptions of the park's visual quality in available literature, mainly guides to Knole, published since the eighteenth century, and landscape paintings or engravings available. The comparison showed that some of these views had been enjoyed in the early nineteenth century, while others had probably not been visible before.

The much portrayed, classic image of the west front of the house from the approach drive (fig.4.20 and view 1: fig.4.40) was one of the most important views of the house, and needed special attention with regard to the unseemly parking arrangements by the National Trust.

Brady's<sup>1</sup> poetic description of the visual experience of Knole, in his guide to the park, tallied with several of the key views identified by the landscape architects, for a specific instance, the view of the house through the Rifle Range Valley (fig.4.40: view 11 and fig.4.35 - B), and generally, those views up the glades in the woodland:

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<sup>1</sup>Brady J. H. *op. cit.*

*"A sharp descent brings us from this mount into a broad valley, sweeping around almost the whole of the park, the banks of which are hung with trees of nearly every description of foliage; in one part excluding all other objects; in another, opening to permit us to catch the gateway-towers of the house, rising picturesquely on the hill above; and again in others allowing a glance up long shady vistas of stems, between which the deer swiftly bound, and where the sun-light, breaking through the dense leafy covering falls on them as they pass, and on the rich velvet of the mossy sward. Pleasant it is in the glades, in the quiet evening as the gloom steals on, and we lose outlines even of the trunks whose light bark flashed so brightly in the gay sun, to listen to the unearthly whispers of the night breeze coming from afar, to hear it stirring the branches high above and to trace the last sigh dying away among the distant groves, as the deep stillness returns. Cold indeed must be the heart which can feel none of the sweet influences of this park's delightful scenery,- which is neither moved by its present beauties, nor its interesting memorials of the past."*<sup>1</sup>

Brady also described the magnificent view of the house from the high ground at the north-eastern corner of the park (fig.4.40: view 4):

*"From the top of this furze bank we catch the chimneys and long roofs of the house, prominent above the broad masses of oak and sycamore and the feathery top of beech which rise from the intervening valley; and it will well repay an evening walk to view its towers and gables standing forth in bold relief against the setting sun, or the long lines of the grey twilight clouds."*<sup>2</sup>

In his brief account of Knole Park, written just 12 years before the storm, Talbot White appraised the general spatial quality of the park with particular reference to wide views of the North Downs:

*"It takes hours of walking to explore every valley-head and wooded retreat, with the delight not only of the close view but of the wide panorama of the downs seen from the many eminences."*<sup>3</sup>

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<sup>1</sup>*Ibid.*, pp.78-79

<sup>2</sup>*Ibid.*, pp.69-70

<sup>3</sup>Talbot White J. *op. cit.*, p.28

The most well known and much enjoyed view of the park for centuries had been the panorama of countryside spreading across the Weald, from the west to the south-east, seen from the highest point of the park at the southernmost corner, where a masthead had stood in the last century to obtain a better view (fig.4.40):

*"... a broad avenue, principally of beech, ascends gently to the extreme south-west point of the park, from whence bursts immediately on the sight a wide extent of scenery, which it would be useless for a common pen to attempt to describe. It is said to be bounded by the east by the Dover cliffs, and by the coast of Hampshire on the west, exhibiting almost whole of the Weald of Kent, and a great portion of the northern part of Sussex. It presents a charming variety of surface, the colour changing with the time of the day, and the effect of sun and shade: the long masses of forest and park foliage, here lit up by a sudden gleam, and there lying in the grey obscurity which a passing cloud throws over them: the horizon, though extremely delicate in its distant tints, one moment clearly defined against the sky, then gradually lost as a far-off shower draws before it its misty veil, and again breaking forth as we watch the watery curtain travelling on over the long tract of country. ... well cultivated fields, the rich orchards and hop-grounds, and the numberless mansions which peep forth from the groves by which they are nearly surrounded, strikingly contrast with the former state of the whole."*<sup>1</sup>

Virginia Woolf alluded to the same view in her book 'Orlando':

*"He walked very quickly uphill through ferns and hawthorn bushes, startling deer and wild birds, to a place crowned by a single oak tree. It was very high, so high indeed that nineteen English counties could be seen beneath; and on a clear day thirty or perhaps forty, if the weather was fine. Sometimes one could see the English Channel, wave reiterating upon wave."*<sup>2</sup>

This particular view was a good example of the difficulties arising from the need to maintain the visual integrity between the park and the wider landscape: to

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<sup>1</sup>Brady J. H. *op. cit.*, pp.75-78

<sup>2</sup>Woolf V. **Orlando; A Biography**, Hogarth Press, 1928, London, p.19; it is believed that Knole inspired Woolf for the setting of the book, and so did the view from the former masthead-platform at the southern end of the park for the description quoted here. However, towards the end of the passage the author adds that London was seen to the east of the vantage point, making the setting decisively fictitious.

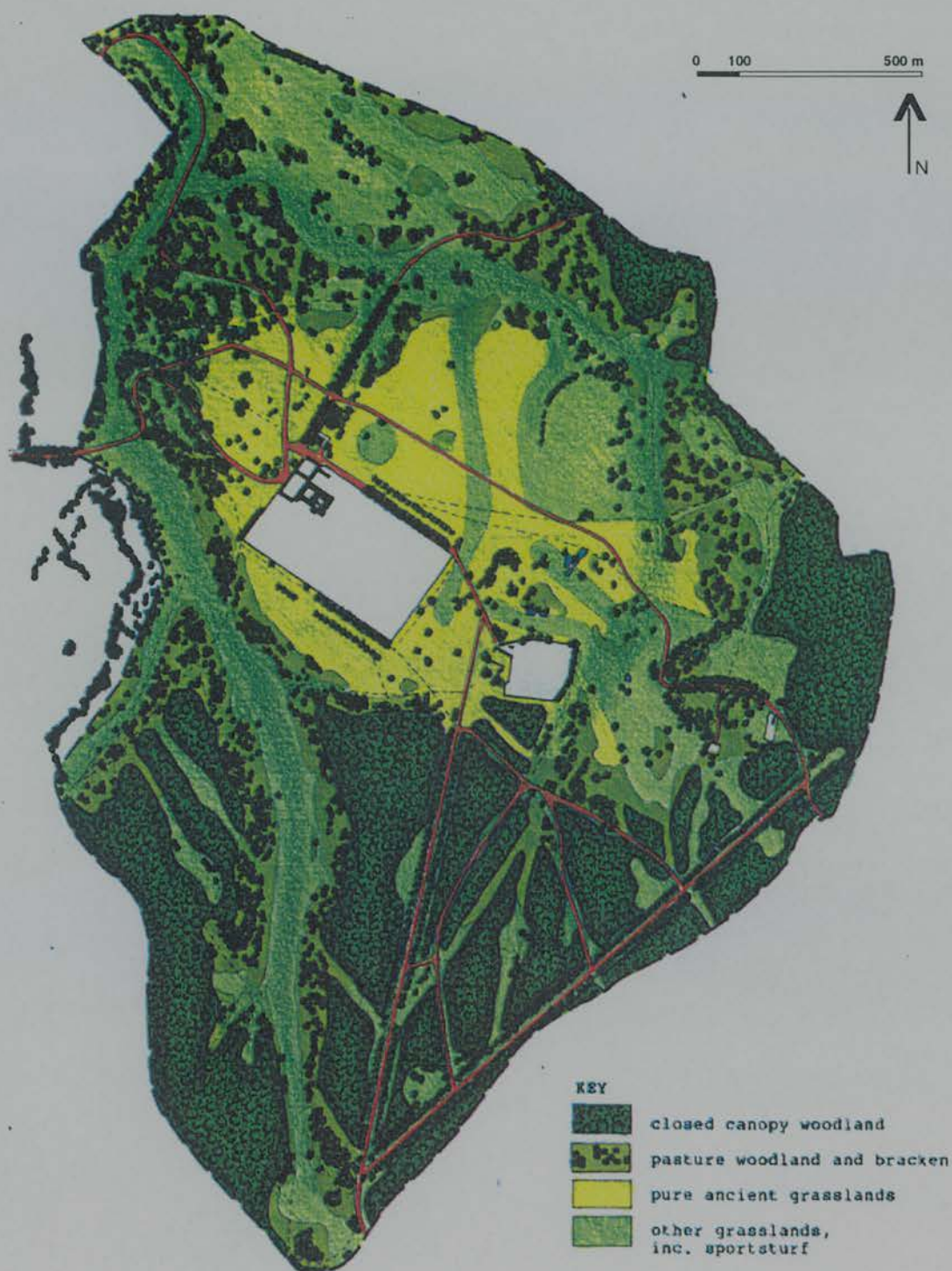


preserve at least part of the view, the co-operation of the adjacent land owners would be needed. Similarly, in the case of the newly exposed undesirable views of the M 20 road lighting on the North Downs, planting would be needed not only inside the north-eastern boundary of the park, but also outside the fence (fig.4.40).

#### **4.8 The Masterplan for Restoration, Detailed Design and Management Policies**

According to their thorough analysis, the landscape architects graded and selected the views to be retained and the ones that should be screened. The spatial structure thus refined could now be imposed on the broad spatial organisation achieved through ordering the tree canopy of the future. Selected view lines would be kept through woodland planting as irregular or definite, sweeping glades and passing invisibly across open spaces. The glades through the woodland would serve as additional grazing area for the deer, corresponding to the 'laund' structure that would have existed in the past. Detailed treatment of these linear spaces would involve removal of any obtrusive limbs or whole trees depending on the extent to which the object seen should be dramatised by framing in foliage. Gap planting of the avenues, clumps of trees and specimens in other spaces, and strengthening of the open woodland in the north would all be designed following this spatial structure, and where this would not be applicable, the planting would follow the intrinsic visual quality of the vegetation type. The overall master plan for the park restoration was then formulated, uniting these well defined policies to a single spatial composition (fig.4.46). Detailed design and the future management policy within the master plan would aim to reinstate and recreate the medieval character of the park landscape, as an integral part of the wider local landscape rather than a totally isolated fragment, by reinforcing its visual affinity with the elements of compatible character in the surrounding landscape.

The great simplicity of detail with which each individual element blended into the park landscape was the underlying virtue that had resulted in the collective expression of the park's medieval character. Perpetuation of this plainness in detail was the key concept that underpinned the policy that the landscape architects formulated for detailed design, closely following, but adapting the recommendations by the ecologists and the deer consultant. Therefore, while visually linking the park landscape to compatible elements in the surrounding landscape, the internal detail would be vigilantly ordered to *"perpetuate the contrast between the severity of Knole's*



**Fig. 4.46:** Master Plan for Knole Park Restoration Scheme. (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)

*character and the muddled world outside.*"<sup>1</sup> This firm policy was coherently applied to each single detail throughout the park, from a footpath to woodland planting.

The narrowness of the park tracks and the informality of their edges, without kerbs of any sort, was the reason for the insignificance in their impact<sup>2</sup>. Many well used foot tracks in the park had always been grassy rides on natural surface (fig.4.47). While these would be allowed to remain, macadam surfacing would be needed for a few selected tracks serving inhabited cottages in the park. They would however, be finished as roughly as practicable in material compatible with their surroundings (fig.4.48). The remaining tracks with a hard finish would all be allowed to return to a rougher surface as they weathered, while those no longer needed for vehicular traffic could become firm based grass rides (fig.4.47). On the golf-course, lengths of path had been hardened with brightly white alkaline shells which made them obtrusive. It was recommended that they should be changed to local gravel with soft colours. Gates and kissing gates should all be made more inviting with a rural elegance of craftsmanship compatible with Knole's character, by negotiations with the National Trust in some important cases in the area under the Trust's ownership. There would be no parkland furniture in the park: fallen tree trunks would serve as seats, the night sky would provide enough light through the darkness; this simplicity was to remain.<sup>3</sup> Management of the several ponds in the park would carry forward at the same time as the replanting work; the ones with a hard bottom finish, edging and ramps for the stock would need restoration in the long-term. Some important old and hollow trees had been protected in the past from vandalism by circular iron railings (fig.4.23 - B). However, such measures could now raise as many problems as they would solve.

Tree and woodland planting would carry the greatest thrust of the restoration proposals, as the key design element used to achieve the spatial composition of the master plan. This would firmly adhere to the simplicity of the limited number of vegetation types and severity of their detail. Here, the detailed design closely followed the recommendations of the ecologists and the deer consultant, but slightly modified them in certain cases to ensure that no single vegetation type would be overstated to visually dominate the others. For an instance, in the case of species selection for the proposed planting, the precedent of the species composition in certain areas was given

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<sup>1</sup>Quoted from the report by the landscape architects: *The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate*, Colvin & Moggridge, July 1989.

<sup>2</sup>Largely quoted from *ibid.*

<sup>3</sup>*Ibid.*





**Fig. 4.47:** The Informality of Detail Suitable for Footpaths and Tracks at Knole Park.





**Fig. 4.48:** Informality of Detail Preferred for Main Park Tracks and Deer Fencing in Knole Park Restoration Scheme. Note that the cautious detailing of deer fencing and tree guards has made them less obtrusive.

prominence over the change of species diversity recommended as ecologically desirable. The former would undoubtedly perpetuate the character of the given area, while the latter could bring in an overstated diversity. On the other hand, some species not specified by the ecologists would be needed in certain locations to perpetuate the kind of diversity intrinsic, and therefore unique to the park. The woodland would consist almost entirely of oak, beech and sweet chestnut, at times in extensive blocks of the same species, and in others two species mixed in an irregular form, since this composition seemed to best express the character of the park's woodlands. Added to this would be a small amount of ash and hornbeam, the latter particularly around pure beech plantations. A small quantity of larch seemed appropriate on the top end of the Rifle Range valley, and scots pine at the crest of Godden Bank, where these species grew before (fig.4.49). The margins of the woodland would occasionally be textured with smaller trees of flowering species, which would include field maple, hawthorn, wild cherry, sloe and some yew and holly. The future species composition would also depend on the regeneration of woody species expected in the enclosed areas. They, together with herbaceous species, would hide debris, increase the wildlife potential and nurse the main crop in the initial period of establishment, but only a few of these would outlast removal of the deer fencing<sup>1</sup>.

Pedunculate oak, beech and sweet chestnut would be also appropriate for the pasture woodland in the parkland area and as specimens. Scots pine and horse chestnut would be used in selected positions, the evergreen being particularly valuable for diversity and for reinforcing the spatial structure. A few specimens of cedar of Lebanon would be desirable in the Cedarholme area. Hawthorn would be planted scattered about the park. Very little planting would be proposed for the plateau of acid grassland, pedunculate oak and hawthorn being the appropriate species, to plant singly or in groups of five or less. The species and the siting of trees on the golf-course would be re-examined within the overall planting policy, and removals, replacements and additional planting would be proposed where required<sup>2</sup>.

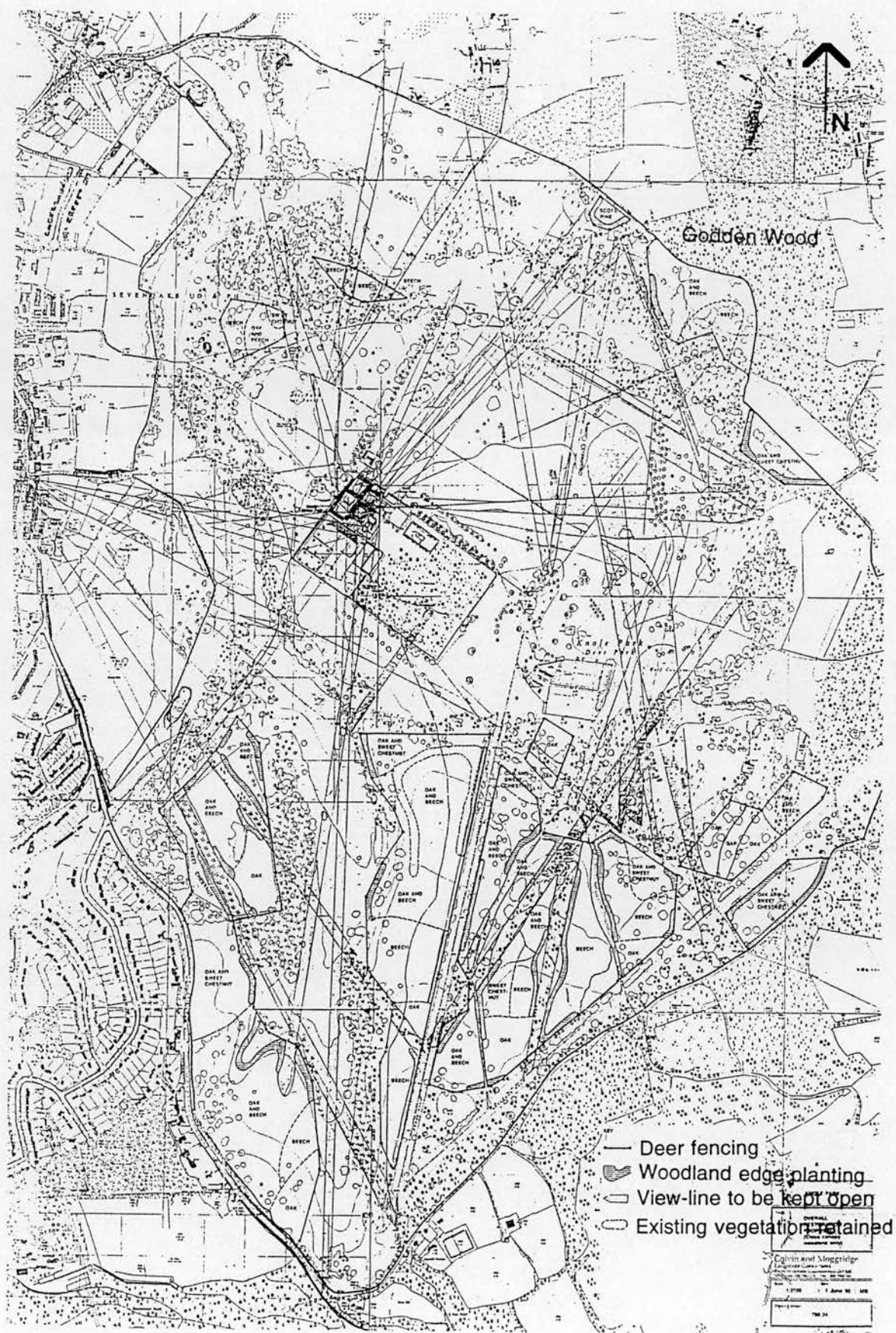
Blending these species together, the planting design would aim to reinstate the tree canopy structure and the character and the ecological value of the four vegetation types. Close-canopied woodland would be achieved by large scale blocks of planting, enclosed in deer fencing for an initial 25 year period of establishment, which would then be subjected to a long-term rotation cycle of grazing alternating with enclosure for regeneration. Dense woodland planting would be ordered to screen undesirable views

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<sup>1</sup>*Ibid.*

<sup>2</sup>*Ibid.*





**Fig. 4.49:** Detailed Restoration Proposals for Close-canopied Woodland at Knole Park (Reproduced with kind permission of Messrs. Colvin and Moggridge).

along the eastern fringe of Sevenoaks and along the north-eastern boundary of the park, on the Godden Bank inside the park and outside in the Godden Wood, a property of the Knole estate. The latter would be planted following the same policies applied within the park (fig.4.49). The large scale deer fencing, stiles and kissing gates required would be detailed with care to minimise their impact, as they would be needed for a minimum of 25 years until the woodland would be mature enough for opening to grazing, and thereafter for the future woodland rotation cycle (fig.4.47 and 4.48). It would be feasible to plant dense woodland over land full of standing stumps and fallen timber, which within a few years would become invisible amongst the dense undergrowth of the young fenced woodlands.

The pasture woodland, which would be limited to the expanse of the parkland zone during the initial period of enclosed woodland establishment, would be openly spaced with native trees, incorporating trees in various states of decay. This would effectively be the true expression of the park's ancient woodland character within the first half century or so required for the enclosed planting to mature and merge with the rest of the park. The continuity of the character of the pasture woodland would depend on the presence of an elaborate age structure. Therefore, the design proposals would be set as a long-term programme of frequent and consistent tree planting, singly with individual tree guards or in clumps planted as roundels in many cases and protected by circular deer fencing. Much of the dead wood, still remaining on the ground or standing, would be left to decay *in situ*.

There would be no shrub layer as this would not be possible under the deer grazing pattern, though a few small clumps of common rhododendron that the deer leave behind, would be retained as shelter for the deer until sufficient alternative screen would be reinstated elsewhere in the park. This would be combined with a continuing programme of rhododendron control. Meanwhile, occasional smaller, thorny or evergreen trees would be incorporated along the fringes of the replanting.

The ground vegetation of the future would simply be a consolidation of that which was existing in the park<sup>1</sup>. The pure acid grassland would be totally conserved in its relict state, avoiding any form of disturbance, and would solely be managed by deer grazing. To perpetuate its ecological continuity and the unique medieval essence, a new generation of oaks to be pollarded would be needed singly or in clumps, "*used sparingly lest Knole*" would start "*to look like any commonplace National Trust*

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<sup>1</sup>*Ibid.*

*parkland.*"<sup>1</sup>. Protection from deer and control of grass within the drip-line of newly planted trees would be essential in the early years of establishment.

The fertile type would form the remaining grassland of the park. This would be a permanent, fine textured sward of a species composition with no spring flush, as a steady slow growth throughout the year would be ideal for deer grazing. More such grassland would be made available for grazing, until the normal grazing pattern could resume after the newly established woodland would be mature enough for opening. A pattern of bright green grass, delineating the form of the valleys, would be established, detailed as a patchwork of texture in various degrees of enrichment. In some areas the fertile grassland would be widened, pushing back the bracken. The same treatment would be suitable for the gallops and the woodland glades, with the strict exception of the pure acid grassland. Within the enclosed woodland planting, several clearings would be available for grazing in about 25 years. Until then, these and the linear clearings left for view lines would have to be maintained to control regeneration, by slashing every few years. These would also include some winding internal rides kept through the plantations for management access. Fertiliser and other chemical treatment would be strictly controlled to avoid spreading into ecologically sensitive areas. The sports turf would be maintained by the club and the other bodies responsible. Here, strict control would be sought to avoid any damage to the rest of the parkland by careless use of agro-chemicals. Bracken would be the key element of detail for the natural softening of the junction between the grassland and the woodland. Continuous swaths of 5 to 10 ha would be moulded and maintained in irregular form, controlling further spread into the grassland.

The avenues would be gap-planted and managed, aiming to perpetuate their characteristic, irregular and informal appearance, more as broad rides with narrow hard finished tracks bordered by wide sweeps of grassy gallops, than stately avenues. The informality would maintain itself due to the varied age structure of the old, recently planted and the proposed trees. Gap-planting would however be detailed to maintain the irregularity of spacing, as part of the linear and lateral woodland glade structure proposed: no trees would be planted within the opening of the view lines on the avenues; similarly, as for the open lateral spaces there would be no tree stems blocking the clearance (fig.4.49). Accordingly, on the avenues either side of the house enclosure, certain gaps required to maintain the spatial structure would not be replanted. Here again, the informal age structure would be perpetuated.

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<sup>1</sup>Quoted from *ibid.*



The garden, within the privacy of the great wall surrounding it, would be "*suitable for enrichment by all the pleasures of domestic horticulture and arboriculture*"<sup>1</sup>, in the second phase of the restoration scheme. Despite this treatment, the overall concept for restoration of the garden would correspond with the spatial structure and the character of the outer park, and therefore the master plan for the park restoration.

The success of the master plan would depend to a great extent on the policy formulated for the long-term management of the park, since the desired effect of the detailed design, save for a very few exceptional elements, and the combined expression of the newly created and those rejuvenated from the past -or in other words, the overall effect of the park's character- could only be achieved through a continuous and consistent regime of maintenance for at least a half century. This would be just a brief period in comparison with the five hundred year long history of the park, nevertheless, a significantly unprecedented episode in the park's historical record, comparable perhaps with its heyday in the eighteenth century. Policies for the future would be moulded in the park's traditional management regime, that had proven to have constantly adhered to an absence of aggressive resource control. These policies would favour conserving the park's inherent character rather than to pursue other aims. The landscape architects emphasised the importance of continuing this management concept as a vital means of preserving a precious heritage. In spite of its achievements, the traditional style of management proved to have had a weakness in that it had failed to maintain a balanced age structure to the woodland vegetation, which would have made the park more vulnerable to the storm. Therefore, a key adjustment to the traditional management regime would be an overall policy to sustain its vegetation in the centuries to come.

The areas that were to be completely renewed by enclosed woodland planting would take a few decades before the traditional management regime could be resumed in such areas. In the intervening years, more conventional forestry practices would be required within the fenced areas, which would include a regular cycle of thinning during the first 25 years of establishment among other usual practices of tending to young planting. A well programmed cycle of enclosure and opening to grazing would ensue the period of establishment, in which selected areas of the woodland zone (fig.4.49) would be newly enclosed on a 25 year rotation to allow regeneration (fig.4.50). Subsequently, the close canopied woodland would always include an

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<sup>1</sup>*Ibid.*



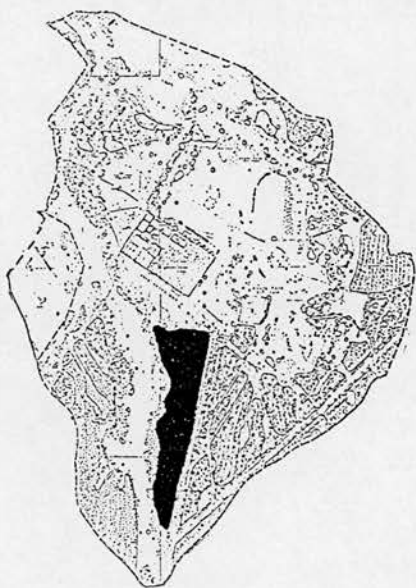
Areas to be enclosed 1990-2015  
(year 0-25)



Areas to be enclosed 2015-2040  
(Enclosure 1 of rotation cycle)  
In first rotation omit areas  
enclosed in 1990-2015



Areas to be enclosed 2040-2065  
(Enclosure 2 of rotation cycle)  
Only light thinning in first  
rotation



Areas to be enclosed 2065-2090  
(Enclosure 3 of rotation cycle)  
Only light thinning in first  
rotation



Areas to be enclosed 2090-2115  
(Enclosure 4 of rotation cycle)



Areas to be enclosed 2115-2140  
(Enclosure 5 of rotation cycle)  
Start again with enclosure 1 of  
rotation cycle after this one.

All other areas to be interplanted with roundels and single trees at approx. 100 years rotation

**Fig. 4.50:** Rotation Cycle of Enclosure for Regeneration in the Woodland Zone of Knole Park (Reproduced with kind permission of Messrs. Colvin and Moggridge).

enclosed area for regeneration (Appendix 4.4). This policy would in effect be a more conventionally acceptable and economically viable way of achieving the results similar to those which were traditionally produced in the past by coppice management. The natural growth and selective thinning system that would be applied here would produce highly saleable, high quality hardwoods to self-sustain the woodland management regime, with a minimum impact on the sustainability of the deer herd management.

Conversely, the woodland in the parkland zone (fig.4.49), that would be the only pasture woodland during the intervening years, would be solely managed by continuous under planting of clumps and individual trees in the future. This would be complemented by enclosing small areas around selected groves of trees for regeneration in most years (Appendix 4.4).

The open spaces established by the spatial composition of the master plan were to be always maintained in the future. There should be no deviation from this policy. Within this policy would be the vital requirement to protect the ancient grassland from vehicular or any other form of disturbance arising from unobserved parkland activities. In this area, and in the parkland in general, a carefully sited new generation of pollards of oak and other species would be established, in addition to those that would be rejuvenated from some storm damaged trees. Regular 'dragging' would be applied to maintain the bracken which would be combined with the enrichment of the fertile type of grassland, in addition to intensive control of bracken in the acid grassland. As a general principle, bracken would not be allowed to spread beyond the areas initially established (Appendix 4.4).

A firm policy for the further clearance of storm damaged wood was needed as the first, and urgent, step towards the restoration programme. Saleable timber had virtually all been removed, and most entangled areas had been cleared. The remaining debris and wood should all be protected for the cycle of the saprobiotic life forms, with many other advantages for the landscape, particularly its character. The final clearance would be limited only to the areas with a high public safety requirement and where the fallen timber would be obviously obtrusive, either visually or physically. Here, the timber and stumps would be placed in areas of bracken, close-canopied woodland or remote parts of the pasture woodland and would be arranged in irregular but compact groups, to avoid interference with the work needed for future planting or management within the parkland zone. Large and particularly obvious stumps and timber would be taken out and very unsightly root plates would be cut back to allow



them to fall back upright. Where unpleasantly visible, small fallen trees would be removed. The timber that had been heaped up would be dismantled and irregularly distributed within the surrounding area. The remnants of the coniferous woods, which were suffering from further wind-blow, would be cleared away, except for a few fringe areas that could act as a nurse to the proposed plantations. As part of the clearance, almost all the common rhododendron on Godden Bank would be eliminated by crushing, leaving only the outer western fringe. No other clearance work would be intended, unless if a particular item would prove to have a jarring appearance during the site work for restoration. The regeneration of the ground layer within the enclosed areas in the near future would conceal much of the entangled remains of timber, while the debris would rot away quickly.

The presence of timber and debris in the areas that would be enclosed for woodland planting would provide a welcome aesthetic opportunity, since difficulties in carrying out a regular pattern of planting would lead to a more natural woodland composition. Here, locating and tending to individual trees would be made easier by the use of shelter tubes during the establishing years. Obtrusive fallen debris in the glades for view lines would be moved into the planting area. The shattered remains of trees that were still standing would be retained, except in areas around the house where they would be visually obtrusive or where they would prove to be unsafe for the public or appear to be unpleasantly numerous. In the cases where they should be removed, the stumps would be left on ground to rot. As new growth had been observed to be emerging from many such shattered remains, and such curious forms would be consistent with the park's character, manicuring them would be totally unsympathetic with Knole's character. Therefore, tree surgery would be only applied to clearly vulnerable limbs.

A preliminary landscape report for the Knole park restoration scheme had been accepted by the trustees of Knole Estate in February 1989, as the basis for consultations with the grant giving and other interested bodies. The results of several of these consultations had provided a sound basis for the development of the final restoration proposals. In July 1989 the landscape architects produced their final landscape report, presented with the master plan for restoration and management policies. The proposals, having been negotiated and approved by the trustees and all the other interest-parties, the park restoration programme was initiated in the late summer of 1989<sup>1</sup>.

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<sup>1</sup>Based on *ibid.*

#### 4.9 The Scheme's Appraisal and Discussion

The examination of Knole Park Restoration Scheme for this case study commenced in the early summer of 1990, when the author was asked to participate in the work programme as a member of the team of landscape architects. By then the clearance of storm damaged and fallen timber had been completed, and the programme had moved on to detailing of planting. Timber clearance work had been well supervised and had closely adhered to the landscape proposals. This had given many areas of the park a credible and undamaged appearance. A large quantity of fallen timber and standing damaged trees had been retained as intended by the landscape architects. These retained had been carefully placed and distributed amongst undamaged vegetation to give the park an appearance of continuity, as though the fallen timber, in spite of its large quantity, had always lain there (fig.4.51 and 4.52).

The detailing of planting included individual specimens and clumps of tree within the pasture woodland and deer fencing for blocks of close-canopied woodland. Here, the approach adopted by the landscape architects for detailed design was noteworthy. While the master plan dictated the broad principles of species composition and structure of each vegetation zone, the treatment of each individual element or group was almost always decided on site. Once pegged out on site, these were then recorded in plans for documentary purposes. This was a refreshing contrast to the conventional practice of drawing board based detailing and specification leading to on site laying out of details strictly following a contract document. The essence of this approach adopted for the park restoration was as if the landscape architects had travelled back in time to an age, setting and conventions appropriate for the treatment of an ancient landscape like Knole; an approach evoking the style and methods of the eighteenth century English Landscape Gardeners in their heyday.

The advantages of this approach were many in the context of the ancient landscape of Knole. Detailed design required a comprehensive understanding of the site, a high level of ability to read and understand the park landscape in order to communicate proposals in intricate detail. Conventional graphic aid, no matter how elaborate, would not have allowed such intricate levels of communication. The site based method in contrast allowed the landscape architects to communicate each individual treatment required through actual visual means. Therefore, the spatial and visual relationship of one element with the other, for instance an individual specimen proposed with an existing old tree, could be fully appreciated, and the new element could be correctly sited. This method enabled them to work together on site with the





**Fig. 4.51:** Two Areas of Knole Park Following Two Different Regimes of Fallen Timber Clearance. Top: pasture woodland after more intensive clearance except for large fallen trunks retained. Below: clearance appropriate for an area already enclosed for woodland planting with stumps and timber and debris allowed to blend with the dense ground vegetation.





**Fig. 4.52:** The Effects of Various Fallen Timber Clearance Regimes Used as Appropriate at Knole Park. Top: valley-sides after cleaarance with timber allowed to remain in bracken. Below: heavily damaged area after clearance and woodland fencing, with the remaining debris already concealed in ground vegetation.

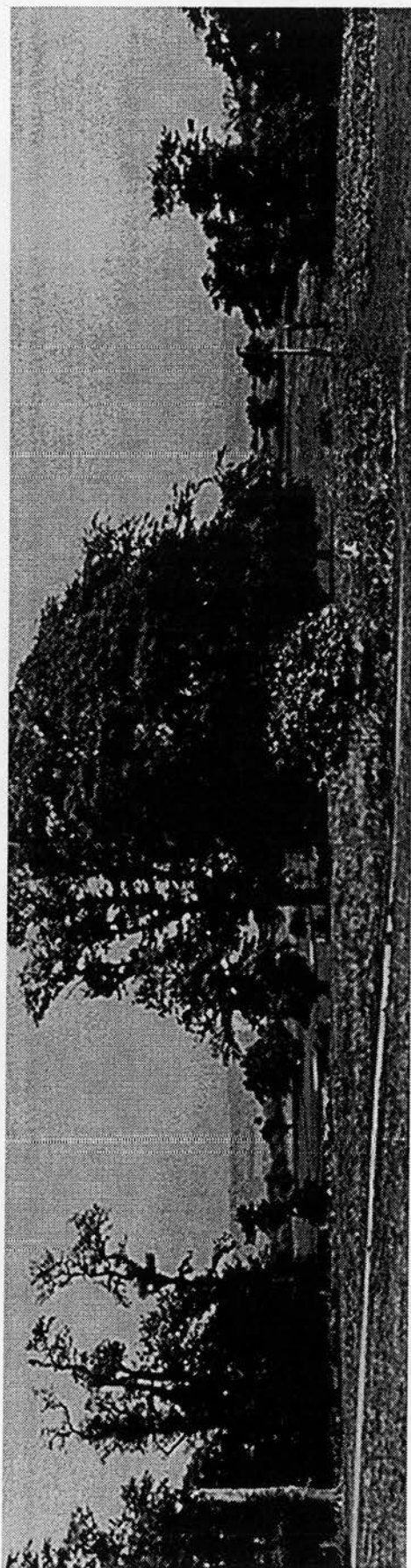
forestry consultant, other contractors, advisors and managing agents as a well co-ordinated task force to refine each detail.

Accordingly, where individual trees or clumps were intended within an area, the siting, species selection and the laying out of the enclosures or guards were all decided on site. This allowed the proposed elements to be well related to the spatial structure and the character, species and intrinsic value of the vegetation in a given area. Similarly, the deer fence-lines of large planting enclosures were all paced out on site with the participation of the forestry consultant and fencing contractors. Particular details of these fence-lines such as indentations, kissing gates and stiles were all measured on site and constructed before they were recorded on plans. This method proved most effective in laying out key view lines and incorporating them into the fencing structure. This helped communicate to the forestry consultant the intricate methods of tree surgery and clearance required in creating informal and irregular glades through the woodland as suitable for Knole's character. A similar procedure was applied in maintaining less marked view lines through more open pasture woodland. Here, fully supervised, intricate removal of branches was required to get the appropriate effect for a dramatic view.

One advantage of this post-documenting method was that it reduced the graphic workload to a minimum. It was obvious that if clear and concisely drawn specifications were to be produced for an area as large as Knole and for as intricate and numerous design proposals, the number of drawings required would have been immense. This would have been an unacceptable expenditure within a tight budget, as the funding available was limited.

Knole Park Restoration Scheme is a particularly good illustration of the breadth of knowledge and expertise required in conservation and management of an ancient landscape, one in which the archaeological evidence is not buried, but very much alive and in use; and in need of active rather than passive conservation, and thus in effect the subject of archaeological resource management. The role of the landscape architects here has been that of a central, co-ordinating body. The well informed managing agents should be commended for giving the landscape architects the necessary freedom of brief and responsibility and authority over the technical aspects of the restoration scheme. It is not possible to fully appreciate, let alone justifiably evaluate, the success of the Knole park restoration, until the scheme matures and eventually realises its management aims somewhere in the early twenty-first century. Yet, the scheme deserves success for it has demonstrated an exhaustive approach to





**Fig.4.53:** (Views 1 & 2-Fig.4.40). The existing pasture woodland before restoration planting (Top) and photomontage construction of the restored pasture woodland at maturity, showing the two view lines of the North Downs kept clear as grassy glades (Below).





A



B

**Fig. 4.54:** (View 6: Fig. 4.40) The Exposed Buildings Cluttering the Important View of Sevenoaks Church (A) Made More Serene by Mature Pasture Woodland Planting (B).

the understanding of the landscape, a conceptual coherence in its planning and design and a firm pursuit of its future management aims (fig.4.53 and 4.54). It certainly sets a commendable example that archaeological resource management should be more concerned with the recognition and maintenance of ambience and sense of place, rather than more overt artefact presentation. Specially significant here is the very necessary but atypical length of the contract for which the landscape architects have been commissioned together with the forestry and deer consultants. Messrs. Colvin & Moggridge, Landscape Consultants will be continuously responsible for the co-ordination and supervision of the management of the post-construction landscape of Knole for at least the next half century, and will remain landscape advisors to the trustees of Knole well beyond this contract.

Such an arrangement, in which several generations of a practice of landscape architects would follow up a scheme, shows a clear understanding of "*the long continuity of the landscape and the slow pace of landscape creation*"<sup>1</sup>, particularly in relation to a landscape such as Knole, with a resource history of some five hundred years of management as a deer park. It is clear that the long running contract for Knole will allow the landscape architects to successfully pursue the aims of their master plan, while making judicious adjustments to detail reflecting the many accidents of time and inevitable changes in attitudes. This will help sustain the value of the park landscape from one generation to the next<sup>2</sup>, an attitude that may be described as a firm commitment to the fundamental concept that shaped the restoration plan for Knole: "*the future of a landscape is an extension of its past*"<sup>3</sup>.

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<sup>1</sup>Moggridge H. and Carter C. *op. cit.*, p.21

<sup>2</sup>*Ibid.*, pp.21-22

<sup>3</sup>Quoted from the report by the landscape architects: The Restoration of Knole Park: A Landscape Report for the Trustees of Knole Estate, Colvin & Moggridge, July 1989.

## *Chapter Five*

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### *Management of Stonehenge: A case for Comparison*

The three case studies have demonstrated that managing landscapes of archaeological value requires a high level of collaboration among many differing parties -professionals, government agencies and ownership and other interest groups- each with a specific skill or interest. Among these, the role the landscape architects have played in the schemes has fulfilled the need for co-ordination and has influenced an integrated approach of resource management that has brought about the best possible balance between conservation and economic interests. The achievements of each of the schemes to a large extent reflect the effectiveness of the landscape architects' co-ordination. Similarly, the failures of the schemes expose where this co-ordinating role has been less decisive.

The following is a brief study of the past and present management of the world famous landscape of Stonehenge. It aims to demonstrate how the lack of decisive co-ordination and leadership on the part of those who are responsible for the management of this most celebrated site has made it widely regarded as a national disgrace<sup>1</sup>. The comparison, it is hoped, may facilitate a fuller appreciation of the landscape architects' achievements at White Horse, Brenig and Knole.

Stonehenge in its modern setting within the Salisbury Plain may be said to encompass an area of some thirty kilometres square. It had its beginnings as the landscape we know it, in the Wessex Neolithic some 5000 years ago. Today it comprises over 450 listed features of archaeological interest, including the famous Stonehenge, but also earlier prototype wooden henges, barrows, cists, cairns, cemeteries, relic settlements and ceremonial and boundary cursii, together with very

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<sup>1</sup>See Chippindale C. **Stonehenge Complete**, Thames & Hudson Ltd., 1983a, London; Chippindale C. *What Future for Stonehenge*, **Antiquity**, No.57, 1983b, pp.172-180; Chippindale C. *et al.* **Who Owns Stonehenge?**, B. T. Batsford Ltd., 1990, London; and English Heritage and The National Trust **Stonehenge, the Present, the Future**, Public Consultation Leaflet, May 1993, London



many other minor features<sup>1</sup> (fig.5.1). The whole site indicates a period of intense activity between the first and second millennia BC and involving important ceremonial usage with ancestor and nature worship, the details of which we remain largely ignorant of<sup>2</sup>.

North of the henge (fig.5.2 and 5.3) lies the modern army camp and training grounds of Larkhill; to the east close by is the large market town of Amesbury and transecting the plain just east of the henge are two major trunk roads, the A 303 and the A 344.

Much of the site is overlain by Celtic ridge and furrow reduced by modern ploughing and following a long period of apparent neglect during the Bronze Age and Iron Age as the site lost much of its Neolithic significance. In Medieval times Stonehenge gathered an increasing mythology, half pagan, half Christian. The stones in their then wild surroundings accrued magical powers and even the presence of Merlin himself; and this led, not surprisingly, to their deliberate defacement during the Puritan Revolution of the Seventeenth Century. John Aubrey at that time noted that pieces of the stones, ground to powder, drove toads away from wells, and Stukely in 1740 commented that people were still chipping pieces off them for their alleged medicinal value. Two centuries later and the site was largely surrounded by arable land, but it remained open to the public<sup>3</sup>.

Modern study of the site may be said to have begun in 1880 when Flinders Petrie surveyed it accurately and numbered its stones. In 1915 a certain Mr. Chubb bought them for his wife after she had remarked over breakfast that it would be nice to own them, but three years later they were made over to the nation for £6000 on condition that public access was maintained "*unless the Ministry of Works deems otherwise*"<sup>4</sup>.

Today English Heritage owns and manages the site for the nation but it remains far from open to the public. The National Trust owns some 600 hectares of the surrounding land and the Ministry of Defence the lands to the north. Direct access to the henge has had to be withdrawn over the last two decades, as visitor levels have

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<sup>1</sup>Bender B. *Stonehenge- Contested Landscapes* in Bender B. (Ed.) (1993) *op. cit.*, ch.8; Chippindale C. (1983a) *op. cit.*; and RCHME **Stonehenge and its Environs: Monuments and Land Use**, Edinburgh University Press, 1978, Edinburgh, pp.1-31

<sup>2</sup>See Thom A. **Megalithic Sites in Britain**, Clarendon Press, 1967, Oxford; and Thom A. **Megalithic Remains in Britain and Brittany**, Oxford University Press, 1978, Oxford

<sup>3</sup>Bender B. (1992) *op. cit.*; Bender B. (Ed.) (1993) *op. cit.*, ch.8; and Chippindale C. (1983a) *op. cit.*

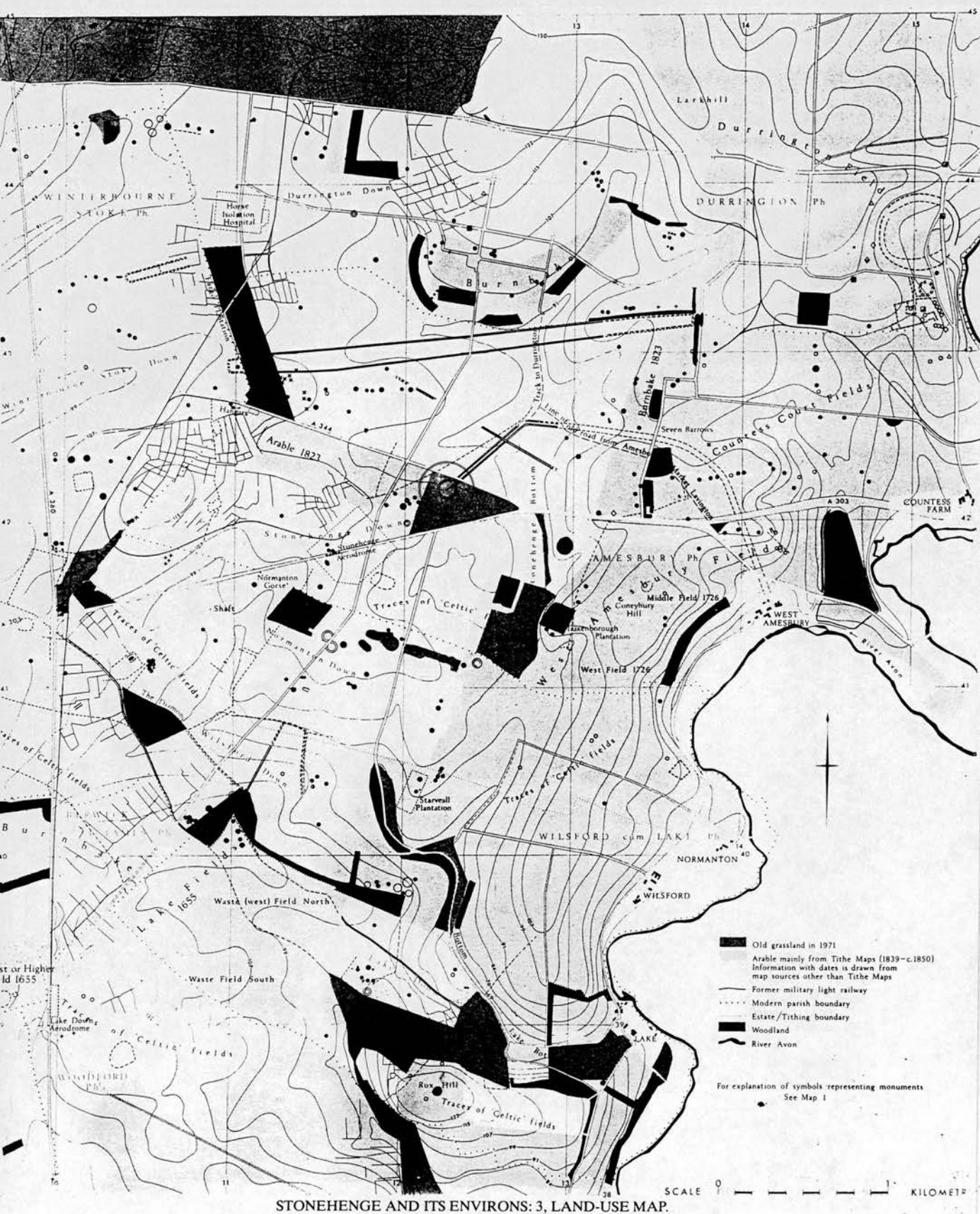
<sup>4</sup>*Ibid.*; and Chippindale C. *et al.* (1990) *op. cit.*



STONEHENGE AND ITS ENVIRONS: 2, BARROW DISTRIBUTION MAP.

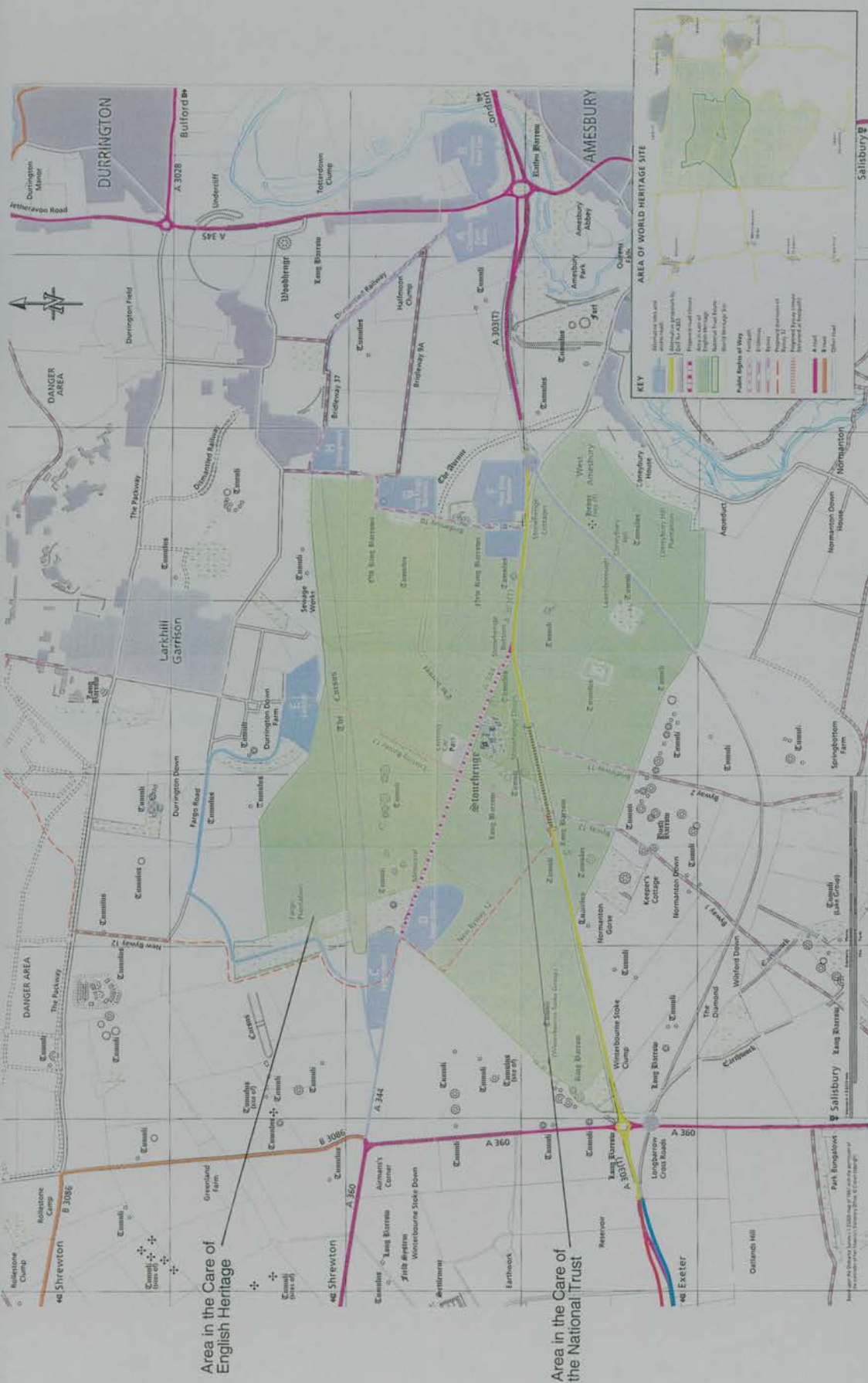
**Fig. 5.1:** Landscape Setting of Stonehenge; Plan Illustrating the Variety and Distribution of Archaeological Features Related to the Henge. (Reproduced from RCHME *op. cit.*)





**Fig. 5.2:** Landscape Setting of Stonehenge; Plan Illustrating Current Land Use Pattern. (Reproduced from RCHME *op. cit.*)





risen to up to 2000 an hour, reducing first the natural grassland cover and then a very unsightly gravel substitute. Presently visitors use a makeshift car park to the north-west, and a crude tar macadam footpath under-passing the A303 leading to the fenced off enclosure of the henge and returning to the car park<sup>1</sup>.

As a landscape experience a visit to Stonehenge today has all the ambience of a supermarket checkout queue. Its disgraceful inadequacy in 1990 at last prompted English Heritage to undertake a detailed review of the site's management within its wider surroundings -the so-called Stonehenge Environs Project<sup>2</sup>. This catalogued in great detail all aspects of the site's resources, down to the fine details of flint distribution, carbonised plant remains and pottery concordances, but at the end of it all, the project report had to admit that English Heritage still has very little understanding of the site on which to base its modern management. The report was also flawed in failing to consider forms of management not based on money making from visitors. It is particularly ironic that site presentation today should be primarily concerned with visitor numbers, since it was visitor numbers that gave the site its Neolithic importance. Modern visitors come from all over the world to marvel at the effort put into transporting the stones a hundred or so miles at most<sup>3</sup>, and which today could be moved and placed as easily as cherry stones around a plate.

Present intentions of English Heritage and the National Trust are to compound the disgrace at Stonehenge by creating a Stonehenge Millennium Park<sup>4</sup>, served by a large new visitor centre and car park selected after an open competition and placed on the edge of Amesbury as a kind of quasi out-of-town cultural shopping centre, but offering an electric trolley ride to the henge 1.5 km away. Access to the stones will continue to be restricted by a security fence<sup>5</sup> (fig.5.3).

Colvin and Moggridge landscape architects entered the competition and received a commendation for at least placing the visitor centre underground and giving the visitors as much incentive to stay inside the centre as possible by providing a virtual reality video substitute for the henge, in addition to a number of good viewing

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<sup>1</sup>Ahern K. and Wimble A. *Wear and Tear at Stonehenge*, **Landscape Design**, No.194, October 1990, pp.46-48

<sup>2</sup>Richards J. **The Stonehenge Environs Project**, English Heritage, 1990, London

<sup>3</sup>See Atkinson R. J. C. **Stonehenge**, Hamish Hamilton Ltd., 1956, London, pp.95-113

<sup>4</sup>See Fisher J. *Cullinan Presents Stonehenge Plans to Banish Traffic*, **Building Design**, November 17, 1995, p.6

<sup>5</sup>See Bender B. (Ed.) (1993) *op. cit.* pp.267-272; Darvill T. C. (Ed.) **Stonehenge Conservation and Management Project: Environmental Statement**, Debenham Tewson & Chinnocks, 1991, London; and English Heritage and The National Trust **Stonehenge Conservation and Management Programme: an Archaeological Background**, English Heritage, 1993, London

points. They were however constrained by the competition conditions from denying access completely, for those willing and able to walk to the henge, and had here to provide a solution like that of Uffington, offering protection to the henge only by the distance walked. The winning solution by architects Edward Cullinan with Livingston Eyre Associates as landscape consultants is fully exposed and brings visitors much closer to the stones, so on the basis of wear and tear from the continuing growth of visitor numbers, one may assume that it will have a fairly short life. It strongly suggests that the management of sites as popular as Uffington and Stonehenge will eventually need to include more and more emphasis on withdrawal of access and the use of virtual reality, as proposed by Colvin and Moggridge<sup>1</sup>. If such sites are to be closely managed to their limits then it is inescapable that the services of landscape architects should be fully used. Beyond these limits of carrying capacity there can be only one solution, like that adopted by the French for the recently discovered painted cave at Chauvet. Here, in order to protect the cave paintings from the kind of damage done by visitor numbers at Lascaux and Altamira, the cave was resealed and completely closed to the public, after the paintings had been fully surveyed and recorded. In applying such an extremity of management to *plein air* sites one has only to recall the most fragile of British SSSIs<sup>2</sup>. The location, let alone the existence, of these are at present known only to a very few. There is much to be said for keeping everyone else in a state of enlightened ignorance. Who, for example, visiting Knole today would suspect it of national importance for its saprobiotic fauna?

The only good to come out of the Stonehenge project so far has been its designation by ICOMOS<sup>3</sup> as a World Heritage Area. This at least on the part of senior management has been an astute political move, as it places the site under a world spotlight, subject to regular reviews by ICOMOS inspectors, and to national shaming if funds are not found, for at least the short term management changes previously described. Sri Lankan archaeologists have used a similar designation to very good effect in funding to support high levels of management at their World Heritage Site at Sigiriya, and they have capped this by managing to retain a power of veto over all management proposals by the chief designer and the chief archaeologist.

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<sup>1</sup>See Andrews M. *Ancient and Modern*, **Landscape Design**, No.221, June 1993, pp.29-31

<sup>2</sup>Sites of Special Scientific Interest

<sup>3</sup>The International Council on Museums and Sites is a non-governmental organisation devoted to the conservation, protection and evaluation of monuments, historic areas and sites. Based in Paris, it works through a structure of committees set up at national and international levels around the world (Price S. N. P. *Archaeology and Conservation Training at the International Level* in Cleere H. (Ed.) (1989) *op. cit.*, pp.293-301).



The future of the Stonehenge landscape is as yet far from certain. What appears certain is that the costly public consultation process, which has already taken fifteen years, is set to continue for quite some time. This process, intended originally to support a successful planning application, began in earnest in 1984. This was preceded by some ten years of preparatory work by English Heritage<sup>1</sup>. The first planning application, which included the competition winning design by architects Edward Cullinan and landscape architects Livingston Eyre Associates, was lodged in 1991. This was quickly rejected by Salisbury District Council, the local planning authority. Two other amended applications were forwarded between 1991 and 1995 and both were subsequently withdrawn<sup>2</sup>. Recent developments suggest that English Heritage and the National Trust have discarded the competition winning proposals and are now looking for a Europe-wide and market led approach to design and build the proposed Stonehenge Millennium Park<sup>3</sup>.

There are some fifteen parties presently engaged in the public consultation process for the Stonehenge planning application<sup>4</sup>. Among these, the more important appear to be the local landowners, residents and conservation groups who have consistently opposed any suggestion of a large-scale visitor facility. The Department of Transport and the Roads Authority have similarly opposed the road realignments and have come up with their own cost-saving proposals<sup>5</sup>. In this highly volatile setting, English Heritage and the National Trust, who work as a single team in this case, represent the co-ordinators. This is a team solely composed of archaeologists and marketing consultants. The archaeologists with their years of investigations at Stonehenge may well understand the value and function of this landscape<sup>6</sup>. However, they have so far shown little or no skill in co-ordinating all these differing parties or providing an effective and unifying leadership. The result has been a mismatch of various parties promoting their own agendas rather than working towards a common goal.

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<sup>1</sup>See Chippindale C. (1983a) *op. cit.* ; and Chippindale C. (1983b) *op. cit.*

<sup>2</sup>Bender B. (Ed.) (1993) *op. cit.*, pp.268-269; Darvill T. C. **Stonehenge Visitor Centre (Alternative Sites), Wiltshire: Archaeological Assessment**, D.T.Z. Debenham Thorpe and Timothy Darvill Archaeological Consultants, 1993, London and Bournemouth; and English Heritage and The National Trust *op. cit.*

<sup>3</sup>Fisher J. *Cullinan's Stonehenge Visitor Centre Scrapped*, **Building Design**, June 28, 1996, p.5

<sup>4</sup>Based on information from the Archaeology Officer for the region of Stonehenge, English Heritage, London.

<sup>5</sup>See **Landscape Design**, No.219, April 1993, p.6; and **Landscape Design**, No.245, November 1995, p.7

<sup>6</sup>See Darvill T. C. (Ed.) (1991), *op. cit.*; and Darvill T. C. (1993), *op. cit.*

The difficulties in finding the best possible balance at Stonehenge may well be greater than those encountered in the three case studies White Horse, Brenig and Knole. This is simply because of the much larger number of parties concerned with this world famous landscape. However, the fundamentals of finding the best balance for a landscape of archaeological value should remain the same, irrespective of its size, importance and the scale of conflict between conservation and other interests. As demonstrated by the schemes White Horse, Brenig and Knole, a decisive coordinating role can yield results reaching the best balance. At Stonehenge no one so far has shown a comparative skill. The team of architects and landscape architects have not had the necessary freedom of brief to play a decisive role. Their efforts have been centred around a predetermined visitor centre, which has been a disadvantage from the outset.

If a World Heritage Area can be managed as ineptly as Stonehenge, something is very seriously wrong with English Heritage's approach to archaeological resource management, ironically a policy initiative for the most part conceived and developed by the very organisation<sup>1</sup>. Clearly what is now needed at Stonehenge is an entirely fresh assessment of the essential attributes of its spirit of place. Landscape architects are trained to search out and express just such attributes. The archaeologists and other specialist members of the English Heritage's Stonehenge team can undoubtedly help to bring together the raw material for making this judgement, but it is most likely to be elicited, clarified and adequately stated by consultant landscape architects. We have seen this demonstrated in the case studies, particularly in the case of Uffington White Horse, which is the most analogous of the three to Stonehenge.

Given a clear, simple, overall, guiding statement of the Stonehenge *genius loci* then all else will follow in its management. Without it, English Heritage will just bumble on. With it, and using Stonehenge as an exemplar, English Heritage will stand to gain greatly from taking the advice of landscape architects in archaeological resource management.

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<sup>1</sup>See Darvill T. C. (1987b), *op. cit.* p.viii and p.1

## *Chapter Six*

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### *Concluding Discussion: The Thesis Contention Justified*

The three case studies of this thesis are all based in Southern Britain and they reflect not only the quite unprecedented pressures here of change and development over the last half century, but also the surfeit of stewards involved in the planning process -government agencies, quangos, local authority departments and professional bodies: all contributing to the process of administering policy and managing the landscape, and even within an estate still nominally private like Knole. The general response of these various interests to conserving and managing landscape specially imbued with history has been to produce a great deal of unnecessary overlapping of function, an overall loss of control and failure of leadership.

For example, sites like Brenig, Uffington and Knole are at present covered by a curiously improvised and very British muddle of different designations in both structure and local plans. These include Areas of High Archaeological Potential, Special Landscape Areas (Somerset and others), Areas of Great Landscape Value (Surrey), Areas of Outstanding Natural Beauty, and also Areas of Specially Attractive Landscape (Leicestershire)<sup>1</sup>. In addition to these the Countryside Commission now proposes a Heritage Land Designation, combining historic and archaeologically important features within the landscape. And over and above all of this, we now have ICOMOS<sup>2</sup> designating World Heritage Areas.

In a sad sense this is no more than a measure of increasing desperation as we see the rich fabric of the British Landscape's slowly accumulated resources each year slipping faster and faster away in irrecoverable loss. A poignant illustration of this desperation was the publication, last December, of the Council for the Protection of Rural England's Tranquil Areas Map of England -a rearguard gesture of impotence if ever there was one.

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<sup>1</sup>Coupe M. and Fairclough G. *op. cit.*

<sup>2</sup>See page 292.



Within these resources, the two of specific interest to my thesis, the landscape and its archaeological heritage, must be taken hold of and firmly managed by those professions best equipped to do so -namely by landscape architects and archaeologists. But it is not quite as simple as this.

Firstly the Landscape Institute, the professional body representing Landscape Architects, is a mere sixty five years old<sup>1</sup> and is yet to gain an adequate recognition from the government, from fellow professionals or from the public for its members to play a significant role in landscape conservation and management<sup>2</sup>. The institute at present has a total membership of some 3000 active designers (including graduate members) and fewer than 250 affiliated landscape managers and scientists<sup>3</sup>. This is hardly an adequate number when compared to the membership of fellow professional bodies such as the Royal Institute of British Architects (RIBA) or the Royal Town Planning Institute of (RTPI)<sup>4</sup>, and the employment of the Landscape Institute members at local government departments and national government agencies is still relatively very low<sup>5</sup>. For example, the case study areas of Uffington and Brenig are served by local authorities with no landscape staff, and the agencies of the National Trust and English Heritage also have no landscape staff in these areas.

Of these two limitations, the limited number of active designers and the lack of recognition, the most important is the latter. Sadly, for all their need there is little so far to show as recognisable contributions by landscape designers in Britain to archaeological resource management. Examples like White Horse, Brenig and Knole are few and far between. Much of the British landscape architects' work in this particular field has been limited to historic town centre restorations and improvements. Many of these amount to little more than half-hearted and cosmetic exercises. The one or two schemes that might have qualified as good examples have unfortunately failed largely due to a lack of nerve. The Landscape Institute membership will have to show a greater competence in such resource management if they are to gain the necessary recognition and therefore to play a more significant role in this field. In this regard, the

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<sup>1</sup>Fieldhouse K. and Harvey S. *Spacious Days*, **Landscape Design**, No.194, October 1990, pp.12-14

<sup>2</sup>See The Landscape Institute **Registrar's Newsletter**, September 1993, London; The Landscape Institute **Development Plan: 1995-2005**, June 1995, London; and The landscape Institute **Draft Petition for a Royal Charter**, July 1995 and December 1995, London; also see Miller T. *The Ineffectual Profession*, **Landscape Design**, No.211, June 1992, pp.11-13; and Ireland N. 'So you're a gardener then?'; and Rook A. *Dithering at the crossroads*, in Letters, **Landscape Design**, No.232, July/August 1994, pp.3-4

<sup>3</sup>The Landscape Institute, **Members Yearbook**, 1995-1996, London

<sup>4</sup>Royal Institute of British Architects **Directory of Members**, 1996, London; and Royal Town Planning Institute, **Register of Members and Practices**, 1996, London

<sup>5</sup>The Landscape Institute, **Members Yearbook**, 1995-1996, London

education of future graduates and the continued professional development of the existing membership will both prove equally important. This aspect will be further elaborated throughout this discussion.

British archaeologists are in an even weaker position. They have only recently established their own professional institute -the Institute of Field Archaeology (IFA); set up in 1982 and at present based at, but independent of, the University of Manchester. The purposes of the Institute are to build up a membership of professional archaeologists to provide a focus and lobby for their activities and objectives, and to develop and maintain necessary educational standards. They have at present some 1200 professional members and a small number of affiliated students, and a membership increase rate of about 100 a year. A Validation Committee meets every two months to consider both individual applications to join and also validation requests from postgraduate courses, of which there are at present some 40<sup>1</sup>. Very few of such course graduates are able to develop professional careers in archaeology.

The Institute of Field Archaeology is, in short, in very much the same position in 1996 as the Landscape Institute was thirty years ago. It is a valuable but small beginning in providing an effective professional base for archaeology in Britain -much hampered by a lack of funds and the smallness of its permanent staff. But already archaeological jobs advertised are calling for applicants who are IFA members<sup>2</sup>.

Local planning authorities in Britain began recruiting archaeologists into their departments during the 1960s, to build up supplementary lists of sites of archaeological or likely archaeological interest in addition to the official lists previously mentioned. Their roles however have become increasingly reactive as local authority budgets have been cut. The Institute of Field Archaeology, like the Landscape Institute, will have to develop considerably more political presence, and very quickly, if it is to develop the role of field archaeology in landscape management and conservation in the UK<sup>3</sup>.

In spite of these limitations, the three case studies demonstrate considerable care and competence in managing their landscape and archaeological resources, and this in no small measure has been due to the contribution of the consultant landscape architects. The discussion in the previous chapter (Chapter 5) has sought to compare

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<sup>1</sup>Council of British Archaeology **Yearbook**, 1995, York

<sup>2</sup>Addyman P. V. *The Role of the Professional Institution*, in Cleere H. (Ed.) (1989), *op. cit.*, pp.302-303

<sup>3</sup>*ibid.*

these contributions with the extraordinarily inept attempts to manage Stonehenge. It has argued for the need at Stonehenge for a role of effective leadership and decisive co-ordination at least comparable to that demonstrated by Colvin and Moggridge in the three case study schemes. The following discussion will serve to elaborate on the effectiveness of the landscape architects' role in the three case studies and evaluate their significance as noteworthy examples of archaeological resource management in Britain.

One approach in the final assessment of the contributions of the landscape architect in the co-ordination of the three case studies' landscape and archaeological resources is to consider what would most likely have happened if no landscape architects had been involved at all. Of the three, Brenig is perhaps the one least likely to have suffered at least for the moment, since it is least under pressure from visitors and most able to accept conventional management based on a visitor centre. But even here, what has been conserved and protected from the original fabric of the former valley is largely due to the foresight and precautionary planning of the landscape architects, for the archaeologists' contribution has been subsequent to the detailed design of the reservoir and has been a rescue excavation effort, which in effect removed much of the actual resource but for the two unexcavated sites. It is also fair to suggest that the control of the afforestation would have been far less disciplined without Colvin and Moggridge, and so also the handling of the footpath linkages of the reconstructed archaeological sites and their detailed treatment, and most important of all, their ambience and contribution to the quality of the landscape.

Of the three, Uffington certainly best demonstrates the decisive influence of the landscape architects. Here, their rejection of the short term, close-to-site easy option for the car park was decisive, but it would have come to nothing had they not seen the opportunity offered by the disused chalk quarry. It is most unlikely that anyone else in the professional team would have.

Knole on the other hand would probably have pottered on without them to a safe and conventional management by the land agents, but lacking the present emphasis on the relatively uneconomic deer farming, and certainly with a much greater emphasis on commercial afforestation, and far less on the reinstatement of the ancient woodland.

A second and, perhaps more objective, approach is to comparatively evaluate the landscape architects' role in these three schemes. That it has been a co-ordinating role has been demonstrated in detail within the case studies and established in their



concluding discussions. However, it has not merely been a straightforward managerial task of co-ordinating the skills and expertise of others actively involved. Rather, it has been a co-ordination of knowledge, skills and interests to achieve the best possible balance between the economic interests and the conservation needs. The following discussion aims to elaborate this by taking into account the key aspects of the approach appropriated by the landscape architects in developing each scheme, in comparison with one another.

The first such aspect that emerges from the schemes is the landscape architects' overall study approach to each of the sites following their commissioning. In all the three cases this has been through a broad regional perspective that evaluates the site in question within its wider landscape setting. The outcome of this approach has been the recognition of each site's essential landscape character and its contribution to the wider landscape and vice versa. This form of broader approach has helped identify and evaluate the character of each site's landscape as a whole before focusing on to individual elements including those of archaeological value.

The success of this approach has been most pronounced in the case of the White Horse hill, where the prominence of the site over its regional landscape has been the basis for the landscape plan. While it was the White Horse itself and related archaeological resources that essentially produced this powerful evocative character, the landscape architects were able to identify the minimum extent of the hill that was needed to be restored in order to enhance and perpetuate this character. This has not been the ideal extent of the escarpment that should have been restored and conserved, but at least the largest part of it conservable striking a balance with the client's interests. This is the kind of skill that will need to be increasingly emphasised in the future training of landscape architects in Britain.

At Brenig and Knole, the landscape architects have had even less freedom of site than at White Horse Hill. Yet the approach by the landscape architects has been the same, in identifying the relationship of the sites' landscapes with their surroundings. In the case of Brenig the site for the reservoir had been already decided by the planners and engineers. Fortunately, the landscape architects concluded that this was an excellent choice, recognising that the valley was well contained by the hills surrounding it. Then it was the mitigation of the reservoir's visual impact over the wider landscape that the landscape architects set about to achieve, by strategic control and shaping of forestry. Within the containment thus achieved, they were then able to

protect and conserve areas of archaeological and natural value of the valley to perpetuate its landscape character.

In the case of Knole, the landscape architects identified the significance of the setting of the park as a public open space as well as in containing Sevenoaks town expansion. Yet, they had no control over any planning policy or development outside the park. They recognised the park as a medieval relic isolated in a rapidly changing landscape. They identified the park's landscape character as a unique leftover distantly related to the original wildwood. There were very few elements in the surrounding landscape that had any affinity with this character: parts of the North Downs, the Wealden countryside in the south and Sevenoaks parish church within the town area. The rest of what was seen from the park, mostly exposed by the storm damage to the vegetation, was visually degrading the medieval ambience of the park. Therefore, the basic spatial concept of the scheme has been to conceal the inappropriate intrusions and to enhance appropriate views. In presenting Knole to the modern visitor it is inconceivable that any other professional on the team could have managed to elucidate such a concept. What the landscape architects have aimed to achieve is to strengthen the isolation of Knole Park in its wider landscape, while maintaining all possible links with the few remaining related elements that are most unlikely to be affected by encroachment of development in the foreseeable future. This is a good demonstration of the difficulties in maintaining the integrity of a relic fragment of a given landscape subject to increasing pressure from economic development. For example, what will come of the landscape architects efforts if the Sevenoaks parish church in the future is to be demolished and replaced by a modern building?; what guarantee is there that the views of the North Downs maintained may not be spoilt by roads, motorways, housing or, as frequently happens these days, by a telecommunications tower; similarly, the Wealden countryside in the south is most vulnerable to expansion of housing. Knole's importance as a relic landscape, clarified and elucidated by the landscape consultants, will at least ensure that its voice is strongly heard at both county and local level, when such wider planning matters come to be considered. It will also be an advantage that the area is covered by the Kent Downs and High Wealden AONB designations<sup>1</sup>.

The same difficulties apply to both White Horse Hill and Brenig Reservoir. White Horse Hill and the Berkshire Downs are covered by the North Wessex Downs AONB. Similarly, Brenig Valley comes under Mynydd Hiraethog SSSI<sup>2</sup>. These

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<sup>1</sup>Pearce G. *et al. op. cit.*

<sup>2</sup>Information obtained from the Countryside Council for Wales

designations limit possibility of certain kinds of development like housing, but have no overall effect on agriculture or forestry development<sup>1</sup>. In the case of Brenig the forestry expansion is no longer contained according to the proposals by the landscape architects, as already discussed within the case study (see page 166). As for the White Horse Hill, the site restored by the landscape architects is relatively safe under the guardianship of the National Trust, but there is no guarantee that the rest of the down escarpment will not be further obliterated by agricultural expansion and intensification, despite the AONB designation. However, it is to be hoped that the future management of this AONB will begin to take sensitive note of what has been achieved at White Horse Hill.

Therefore, it is the identification of a site's essential character within its wider landscape setting that landscape architects may make as a particular contribution to archaeological resource management. It is important here to consider how the Colvin and Moggridge landscape architects have evaluated the character of each of the three sites. What elements of these sites have been identified as contributing to a broader landscape character and what part have specific archaeological resources in each site to play in this character? What kind of knowledge and expertise were needed and how did the landscape architects use this knowledge and expertise?

To reiterate in summary, what were the archaeological resources within each of the three case study sites? To begin with Knole, there were seemingly no conventional archaeological resources at all. It is a medieval park with historic buildings and boundary and garden walls listed. It is a SSSI designated park since 1991, and this designation follows the many studies conducted during the restoration scheme<sup>2</sup>; also, this designation only recognises the ecological value of the park rather than its archaeological value. Knole Park was registered Grade I in the English Heritage Register of Parks and Gardens of Special Historic Interest in England<sup>3</sup> in 1983. While the archaeological value of medieval parks has been academically recognised for some time<sup>4</sup>, the relevant legislation has not yet incorporated a provision for such cases. The main reason for selecting Knole as a case for this study was to establish the point that it by all means is an archaeological resource in terms of the definition given at the beginning of this thesis. Together with Blenheim Park recently designated a World

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<sup>1</sup>Coupe M. and Fairclough G. *op. cit.*

<sup>2</sup>Information from Kent County Council and Sevenoaks District Council.

<sup>3</sup>English Heritage **Register of Parks and Gardens of Special Historic Interest in England**, Part 24: Kent, 1987, London

<sup>4</sup>See Darvill T. C. (1987b) *op. cit.*, ch.13



Heritage Area<sup>1</sup>, it arguably shares the distinction of being the best surviving example of a medieval deer park in Britain.

But, Knole does not end at its boundary walls. In the same way, the barrows, cairns, and medieval settlements within Brenig Valley are part of a valley landscape well beyond the reservoir catchment and evolved over millennia of natural processes and human interaction. Ideally, this human interaction is part of the whole web of natural processes taking place within a dynamic landscape<sup>2</sup>. Yet, the most dominant part of these processes in any landscape are the Man's uses and interaction, excepting perhaps in the true wilderness of the abyssal depths of the oceans or the polar ice caps. Therefore, any landscape in Britain is a wholly man-made artefact as previously mentioned (see page 7), and hence a potential archaeological resource. The White Horse is an exception in the three cases as it is a powerful evocative symbol that dominates the surrounding landscape and transforms it into a unique emotional experience. Yet, the landscape architects were able to identify the significance of other elements within the landscape, such as the natural formation of the downland and its vegetation, in contributing to the overall expression of the hill landscape.

What the landscape architects have achieved then was to gather together available knowledge to evaluate the essential character of each landscape as a whole. In all three cases the knowledge has come from many different sources. Two kinds of knowledge become apparent in the information sought by the landscape architects. First kind is the scientific knowledge from ecologists and archaeologists. In the case of Knole, however, the archaeological value of the park was determined through the landscape architects' own research into historical texts and archives on Knole and the locality. The second kind of knowledge is the traditional knowledge, which has come from many sources such as oral tradition, legends and poetry.

While the hard archaeological and ecological facts have provided the knowledge necessary to understand the evolution and dynamics of the three landscapes, it is the traditional local knowledge that has filled the gaps in this understanding, and added an essential human touch. In the case of Brenig, the landscape architects had little knowledge available to them of the value of the archaeological remains in the valley until the rescue excavation was completed. Yet, it

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<sup>1</sup>Information on World Heritage Sites in Britain obtained from the Department of National Heritage.

<sup>2</sup>This is an ecosystem, according to the theory of ecology. Yet, in the current theory of landscape ecology the concept of landscape is understood as resulting from the functioning of a single ecosystem or a series of them overlapping one another (Forman R. T. T. and Gordon M. **Landscape Ecology**, John Wiley and Sons, 1986, New York, pp.3-31).

was the conjectural traditional knowledge that guided them to identify the land use patterns that had in effect maintained the archaeological remains of the valley and which made the imaginative link between Neolithic and twentieth century transhumance something of value for present-day site visitors. It was these land use patterns that the landscape architects served to protect in their landscape planning concept as heritage land uses. Conserving these land uses directly resulted in the conservation of archaeological remains within them, although much of these were later excavated. This knowledge and expertise were largely derived from the experience of local hill farmers who had been using traditional methods of moorland management and rough grazing.

The case at Knole has demonstrated more vividly the use of local oral tradition. This has helped identify and date many features within the park the landscape architects were unable to interpret from the written history. Above all, the human recollection of place deriving from such traditions form a vital consideration when evaluating a landscape, as demonstrated by the oral tradition at Knole (see pages 218-220). Similarly, in the case of White Horse Hill, the landscape architects' primary concern has been the evocative spell of the hill over the surrounding landscape and its people.

All three studies have well illustrated the amount of specialist knowledge and professional expertise required in understanding and managing landscapes of archaeological resource value. The case at Knole has amply demonstrated the value of ecological assets resulting from the continuation of an ancient land use pattern. This pattern in effect is the archaeological asset and the ecological assets are inseparably linked to it. At Brenig the moorland and the rich marshland, and the downland on White Horse Hill are similarly the products of past human use continued to the present. Therefore, conservation of one asset should result in the conservation of the other. Yet, conservation and management of any of these require specialist knowledge other than that contributed by the archaeologist or the ecologist, as demonstrated, for example, by the deer herd management at Knole. The contribution of each of these specialists is limited to the bounds of his or her own expertise. Meanwhile, there are other hard pressing needs to cater for, such as the livelihood of people who depend on the resource to be conserved, users, visitors and ownership interests. These socio-economic realities make other forms of expertise necessary for the management. This clearly shows the amount of co-ordination required when conserving and managing resources inseparably linked to one another. Student landscape architects need at least to be introduced to the methods and skills of such co-ordination.

It is essentially this form of co-ordination that the landscape architects have achieved in the three schemes. Yet, it is the way in which they have achieved it that makes their role useful. They have used the available knowledge to read the three landscapes and to identify what they signified in their entirety, or what they inspired in the minds of those who used them, lived in them or visited them. What the landscape architects identified in this way was the special character of these landscapes, their unique ambience and identity. Then they set about protecting and accentuating this character: they translated archaeological or ecological facts to aesthetic or visual qualities inspiring human emotion; then they co-ordinated and utilised the expertise available to enhance these qualities and subdue any element marring these; and meanwhile, they catered for other demands placed on the particular landscape. What they have aimed to achieve in the three schemes therefore is maintaining a sense of place, the locals can identify with and visitors can appreciate, and at the same time striking the best possible balance between conflicting needs, and, although their efforts have not always been successful, they have at least shown an approach that corresponds with the aims of archaeological resource management. The skills Colvin and Moggridge landscape architects have shown are a combination of professional experience gained over a long period of related practice and good judgement of common sense. These are therefore skills that can be learned and taught.

When comparing the three schemes, the landscape architects' role has been less decisive and restrained in the case of Brenig than in the other two cases. At Brenig, their wider approach has been restrained due to ownership limitations, and this has reflected in the imbalance of forestry and the resulting fragmentation of the valley landscape observed in the case study. The dam remains visually obtrusive as a result of its unfinished treatment. The present management of the site does not seem to correspond with the landscape architects' design aims. At both Knole and White Horse, on the other hand, the landscape architects have had the freedom of brief necessary for a decisive co-ordinating role, the outcome of which is clear from the success of balance achieved at White Horse Hill. This contrast is also apparent in the way the later two landscapes are managed. The long running contract to which the landscape architects have been commissioned at Knole allows plenty of freedom for them to upkeep and improve their design as it matures.

The management of White Horse Hill by the National Trust has closely adhered to the design principles and proposals of the landscape architects. In the run-up to a guardianship reorganisation in the near future, when the Trust is set to gain the full control of the White Horse Hill and several monuments within the context of the



hill including Wayland's Smithy, the Trust has undertaken a long-term management study programme jointly with the English Heritage. This will help formulate a management policy for the hill site in relation to the archaeological and ancient features in the surrounding area<sup>1</sup>.

As part of this management study, an archaeological investigation programme has been jointly undertaken by the National Trust, the English Heritage and Oxford Archaeological Unit, on the hill as well as in the surrounding area. This, at long last, has uncovered sufficient evidence to securely date the hill figure and other monuments on the hill as well as others nearby. Using largely non-exploitative, modern methods, including geo-physical surveys and selective spot excavations, and the recently developed technique of optical dating (fig.6.1), the investigation has dated the White Horse to the Late Bronze Age some 3000 years ago. The construction of Uffington Castle falls within the same period according to the results of excavations. In the surrounding downs, a large, Late Bronze Age settlement was discovered by the team to the west of the hill. The burial mounds within the White Horse Hill yielded evidence of ritual burial ranging from the Bronze Age, in addition to records of previous excavations<sup>2</sup>.

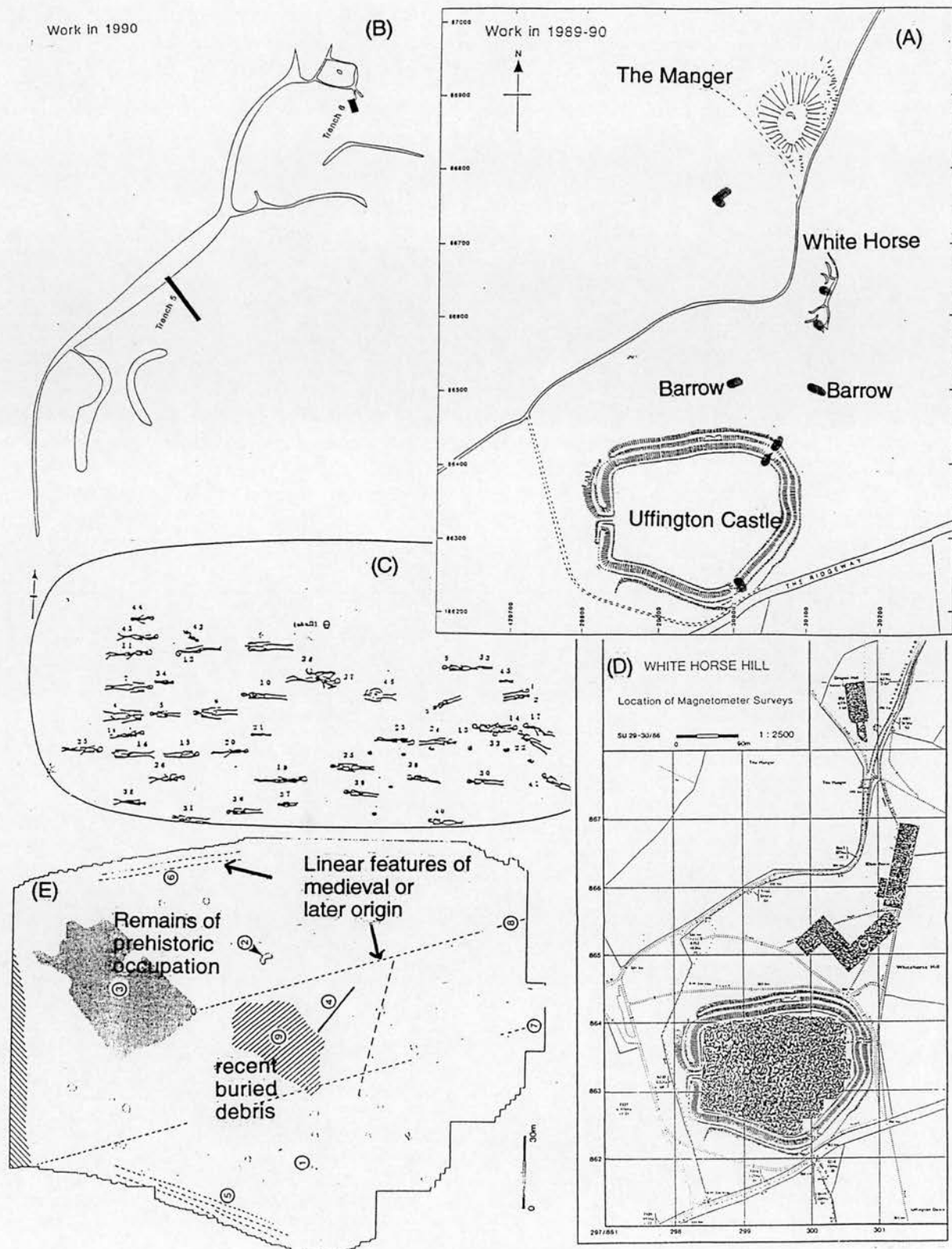
The new evidence has aided the understanding of the archaeological relationship amongst the prehistoric remains and monuments in the locality, within which the White Horse is now clearly evident as the spiritual and ritual centre. This has vindicated the Colvin and Moggridge concept, although it was some fifteen years before these discoveries that the landscape architects successfully managed to identify and clarify this relationship, at least within the hill site. The National Trust will continue to use it as the overall concept of the long-term management policy as well as for a proposed acquisition programme of properties in the vicinity of the hill<sup>3</sup>. This programme is set to carry forward the downland restoration from where Colvin and Moggridge left it due to limitations of ownership at the time, and acquire and restore the area of escarpment between White Horse Hill and the Wayland's Smithy, which includes the newly discovered Bronze Age settlement site. This will certainly serve to further improve the evocative character of the White Horse Hill landscape.

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<sup>1</sup>Based on information provided by the Area Archaeological Advisor, The National Trust, Head office, Cirencester.

<sup>2</sup>Based on a joint press release by The National Trust and English Heritage, 15 February, 1995; Miles D. and Palmer S. *op. cit.*; and Lock G., Raven S. and Steiner M. *op. cit.*

<sup>3</sup>Based on information provided by the Area Archaeological Advisor, The National Trust, Head office, Cirencester.



**Fig. 6.1:** The Extent and Some Results of the 1980-1995 Archaeological Investigation Programme By Oxford Archaeological Unit at White Horse Hill: (A) Areas of limited excavation. (B) Excavation of the hill figure. (C) Results of the excavation of Romano-British burial mound, previously excavated by Martin Atkins in 1856-7. (D) Geo-physical surveys of the antiquities of the site. (E) Results interpreted from the Geophysical survey of Uffington Castle. (Reproduced from Lock. G., Raven S. and Steiner M., *op. cit.*).

By their training landscape architects are predisposed to co-ordinate, but some are better at it than the others. One reason for this is that, as landscape requires a multi-disciplinary study, landscape training draws individuals from many backgrounds and interests, and allows them to develop diverse skills within the landscape profession. What we seek here are those landscape architects who have the necessary co-ordinating skill, but also those who have the necessary interest and background in the subject of archaeological resource management. Thankfully, the landscape profession has seen the need to train specialists at post graduate level to do this kind of work, and the new course at University of Sheffield should begin to contribute a significant labour force within the next five years<sup>1</sup>. The Sheffield course can also help develop an academic knowledge base and research and training skills that may then be disseminated to other landscape training courses in Britain. All landscape courses should accommodate a substantial input of archaeology and landscape conservation in order to produce graduates with a basic competence in dealing with such management in their day to day practice.

The recent imposition of Environment Impact Assessment as a precondition to any development application by the European Union directive has widened the working scope of many practising landscape architects. This form of assessment begins with a landscape character evaluation of the area subject to the development proposal, and this character essentially includes the archaeological value of the area. This means that any landscape architect undertaking an Environment Impact Assessment should have at least a working knowledge of the subject of archaeological resource management<sup>2</sup>.

It is conceivable in the near future that protection rather than presentation will need to play a far greater role in the conservation of our more famous *in situ* archaeological resources. In this the archaeologists themselves have an important role to play, in establishing an order of importance in their scheduling, and just as our scientists have done so in the protection of endangered species and management of SSSI's. Cost can never be measured purely in cash values.

Cash values however are critically important. For example, there will be an increasing temptation for government to involve private enterprise in the funding of the

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<sup>1</sup>See Homewood A. *Working with the Past*, **Landscape Design**, No.221, June 1993, pp.33-34

<sup>2</sup>Institute of Environmental Assessment and The Landscape Institute, **Guidelines for Landscape and Visual Assessment**, E and FN Spon, 1995, London



features like the visitor centre at Brenig. Given such private enterprise funding on a site like Uffington, where would the money making begin and end? Any development on high ground reading against the open skyline would at once destroy the essence of the site experience. Forestation at Uffington, as used at Brenig, would be out of the question, and the case against over development and destruction of the ambience of a site by private enterprise may be presumed highly likely. The English Heritage's Europe-wide invitation to private enterprise for developing the proposed Stonehenge Millennium Park (see page 293) is going to be a test case of the implications of such future development in Britain.

Striking a point of best balance in presenting sites like Brenig and Uffington can never be a static response. The target of best balance is a moving one, as visitor numbers increase and vary. Maximum visitor carrying capacity is again never absolute or precise. Management by public understanding and co-operation is needed rather than coercion, and should always be a desirable characteristic of 'best balance'. But eventually even this will be exceeded.

It seems therefore likely that landscape architects practising in centuries to come will be concerned with recommending upper levels of visitor numbers to sites like Stonehenge; and beyond these limits seeking to depend more and more on forms of intensive rather than extensive management, and involving degrees of virtual reality in their presentation.

To many this may seem an anathema, but recent surveys have shown that much of the visitor population to large sites like Fountains Abbey, spend at least half their time in the visitor centre buying souvenirs and using cafes and conveniences. If the essential spirit of place of such sites is to be safeguarded, then the landscape architect must recommend either the introduction of visitor quotas or 'honey pot' diversions substituting for the site reality.

It is particularly ironic that the English word wilderness, which we equate with empty, sky-filled, spiritually inspiring spaces like White Horse Hill, Brenig and the hilltop of Knole, is derived from the Anglo-Saxon meaning the 'lair of a wildbeast'. The original wildbeasts of these sites have long since gone, to be replaced by the great wildbeast of our own visiting public.

This thesis has sought to argue for a closer future collaboration between British landscape architects and archaeologists within the newly emerged approach of archaeological resource management. The basis of the argument upon a detailed field

and archival study of only three particular case studies may be questioned, but in the absence of any large body of such collaborative work, the author maintains that a valid method of study is by specific example. In the three chosen case studies the author seeks to make no absolute or categorical judgements of quality, but merely to put down a marker towards improved collaboration between both disciplines, and to express the hope that the standards achieved in the three collaborative studies presented will encourage many more of their kind in the future.

## *Appendices*



**Appendix 3.1:** Findings of the Archaeological Excavations at Brenig Reservoir Site (Sources: Lynch F. *et al. op. cit.*, Lynch F. and Allen D. *op. cit.* and Allen D. *op. cit.*)

Monument or site Excavated	Description of the Monument/s	Figure	Description of Other Finds	Radio Carbon Date, Archaeological Period or Approximate Date
Brenig 1 Modern Byre	Relatively modern cow house with little archaeological significance.	-	-	Mid nineteenth century or later
Brenig 2-5 Peat Cutters' Mounds	Peat cutting activity of fairly recent date.	-	-	Very recent
Brenig 6 Kerb Cairn	<p>Situated beside Aber Llech Daniel at the junction between moorland and valley bottom. Developed over 3 phases of construction:</p> <p>(i) Stripping off turf and central hearth or fire-pit with stake holes representing wind breaks.</p> <p>(ii) 12 boulders assembled to form an oval feature 5 m wide, sealing the fire-pit.</p> <p>(iii) Boulders rearranged to form a kerb, 4.5 m diameter, soil and stones dumped within the kerb to create a low mound which housed a cremation burial. Hearth, post and stake holes and stones between monument and stream suggested continued activity. Nine post holes formed a circle 5 m in diameter with a gap suggesting an entrance, the position of the hearth confirming it. A central hole within further suggested a structure probably of sepulchral significance.</p>	3.17	<p>6 flint flakes and two small sherds of pottery.</p> <p>Charcoal from close to the cairn gave a radio carbon date.</p>	<p>First half of second millennium BC</p> <p>1120±90BC</p>

Brenig 7 Enclosure	Small enclosure, approximately 9 m square of recent date.	-	3 worked flints of unrelated Mesolithic origin.	Very recent
Brenig 8 Kerb Cairn	On east face of the valley slope, overlooking Aber Llech Daniel and the cairnfield. Unlike other barrows in the group, built entirely of stone, diameter 11-12 m. Central feature, a large rock-cut grave pit contained an unaccompanied cremation of an immature individual.	-	Flint scraper and a small whetstone. Flint and chert probably of Mesolithic date.	Early Bronze Age
Brenig 9-39 Cairnfield	A scatter of 30 small groups of stone, found to be stone piles resulting from field clearance, predating the major growth of peat in the area.	-	-	-
Brenig 14	Isolated from the above, a stone cairn 9 m in diameter. A non-central burial pit contained charcoal and cremated bones of an adult individual accompanied by a burnt flint.	-	3 worked high quality flints.	Bronze Age
Brenig 40 Burial Mound	Situated on the eastern slopes of Cefn Brenig, largest of the mounds in the group, 24 m in diameter and 1.8 m in height. Built by stacking turves, capped with clay, clearly in a single phase of construction. Beneath the mound were remains of 4 concentric stake circles, retained in the perimeter by a timber palisade and an urn burial with some form of a timber structure, urn a large example of the collared type. The central wooden structure resembled a 'mortuary house' suggesting a central cremation in a large house like structure followed by burial mound building.	-	Flint flakes including a few scrapers. Charcoal from beneath the mound yielded a Mesolithic date.	5700±80BC
			An outside, shallow oval pit contained charcoal and small stones.	Bronze Age

Brenig 41 Burial Mound	<p>Circular mound, 17.5 m in diameter and 1.4 m in height, situated on the eastern slopes of Cefn Brenig, built in 3 phases of activity.</p> <p>Phase I: Deturfing an area around which was an outer circle of stake holes, presumably supporting a wattle-work screen, a period of decades separating this from phase II.</p> <p>Phase II: Building two concentric stake circles within the above, both supporting wattle-work. Within the inner circle was a large grave pit containing carbonised wood of a plank floor or a coffin. Soil here suggested decayed human remains.</p> <p>Phase III: Construction of the superimposed mound with turves incorporating stake circle work, sealing the burial.</p>	-	Flint flakes and a few scrapers. An outside pit contained charcoal.	Bronze Age
Brenig 42 Burial Mound	<p>On the top of the ridge on western side of the valley, 19 m in diameter and 1.3 m in height. The only one in the group surrounded by a ditch, covered a central rectangular structure and two stake circles, built of turf and incorporated an annular bank of clay and stones from the ditch. Two phases of activity were noted, the first represented by a stake circle of 65 holes enclosing the top of the ridge, demarcating an area later to be used. The second phase, commencing after a short period of lapse, was represented by a circle of stakes not concentric with the first, supporting hurdling against which spoil from an outer ditch was placed forming a bank. In the centre was a burial area containing burnt remains of a rectangular mortuary house. After the cremation, the turf mound was superimposed.</p>	3.18	<p>Contrasting paucity of other finds.</p> <p>Outside, an area of burning and a small pit containing a few flecks of charcoal, and some cremated bone in the area contained within some stake circles, suggesting a pyre.</p>	Bronze Age 1660±70BC
Brenig 43 Lambing Shelter	Remains of a sheep shelter of very recent date.	-	-	-



Brenig 44 Ring Cairn	<p>Situated on a flat-topped promontory next to Brenig 45, on the east side of the valley. Consisted of a stone ring 21.25 m in outer diameter and 2 m wide, up to 3 or 5 courses of stone high. The core was built of turves with a crust of stones on the top, giving the impression of a totally stone construction. 1.5 m from the ring was a concentric circle of large but non-structural posts, contemporary with the ring. Some small stake circles outside with no consistency remained a mystery. A bank of clay was built against the outer face of the ring, sloping down to the circle of stakes. Then the inside was deturfed and levelled and the inner face of the ring was masked with gravelly clay in several layers, each layer representing burning and spread of charcoal, and in places digging into the ring. In the centre was an unaccompanied cremation of an adult in a pit surrounded by remains suggesting a funerary structure. On the north-east was a large oval pit containing two inverted collared urns amidst pure charcoal, sealed by a burnt, flat stone layer. Both the urns contained cremated bones together with grave goods. Six other pits contained burnt matter and some grave goods. Three of them were later sealed by an oval cairn grouping them, on which a fire had been lit as one of the last acts within the monument. The finds suggested that the function of the monument was ancillary to the other mounds of the group, connected with rituals involving burials of charcoal, continued over a long period during which the structure was gradually modified. Radio carbon dates proved that the central burial was secondary.</p>	3.19	<p>A discarded oak plank incorporated in the outer bank provided a good radio carbon date.</p> <p>Bronze Age finds were very rare.</p> <p>The flint finds were mostly of Mesolithic type.</p>	1680±100bc to 1280±70bc;
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Brenig 45 Boncyn Arian	<p>Situated next to the ring cairn, relatively small; maximum diameter 16 m, yet structurally complex. Consisted of a central burial area surrounded by 3 concentric stake circles, then encircled by a low, dry masonry 'wall', incorporating a blocked 'entrance'. Outside the wall was a further, irregular stake circle then surrounded by a palisade trench. The central area had been dug into on at least two occasions in the recent past: in 1850 an urn containing a quantity of cremated bone was discovered here. Several phases of activity was noted. The main and the second phase had begun with the central burial suggested by remains of wooden planking or container. 3 stake holes next to this would have been a funerary structure. These and a heavily burnt area near were encircled by the outer stake circles and the wall described above. A turf mound was then superimposed giving the impression that the top of the stone 'wall' was visible above, by incorporating numerous stones just inside the wall. All stake circles possessed traces of wood among suggesting wickerwork. In the last phase of activity, no less than 6 secondary cremations were inserted into the top of the mound, 4 of them in unmarked pits and the remaining in cinerary urns. Two urned ones were of an adult woman and an adult male suffering from osteoarthritis. One urned cremation contained bones of a young adult, probably male. A second urned cremation contained two molar crowns and the ear-bones of an infant. This particular cremation was concealed in a small cairn built over. The mound was then capped over with clay.</p>	3.21	<p>A burnt oak plank outside the outermost circle.</p> <p>Flint tools suggesting Mesolithic activity while a fine, leaf-shaped arrowhead indicated Neolithic presence. On re-examination, some pits east of the mound yielded many Mesolithic implements including a fine backed blade. No related structures were found.</p>	<p>Bronze Age</p> <p>Mesolithic and Neolithic periods: 5700±100bc</p>
Brenig 46 Cairn	<p>Set on the ridge of the eastern side of the valley north of Hafoty-Sfon-Llwyd, in a prominent position. Consisted of a kerb of large stones surrounding a scatter of small stones, much disturbed, at least twice in the recent past. Activity prior to the cairn was suggested by a stake circle demarcating the area. Some traces of central burials were found. One burial had survived containing bones of a young child, which could have been secondary.</p>	-	<p>Some Mesolithic flint finds with no associated structures.</p>	<p>Bronze Age</p>

Brenig 47 Marker Cairn	<p>Stood on the pass on the apex of the cemetery group, at 440 m OD commanding excellent views of the Clwyd valley to the north and westwards and southward views up to Snowdonia and Cader Idris. The monument though outside the river authority area, was excavated with the permission of the land owner. The monument was small, 11 m in overall diameter and constructed as a low mound, only 0.60 m high, added to the top of a natural promontory by scarping the sides and adding soil from a shallow ditch. The top had been enriched by a ring of large boulders. The sides outside were then covered with a 'skirt' of haphazardly arranged stones. The lowest level was made of turves. There was no evidence of any burials, except for charcoal on the old ground surface on the top of the knoll. Its unusual construction in a striking position, in relation to the rest of the barrows in the valley, could only suggest a function of marking tribal or regional boundaries.</p>	-	-	Early Bronze Age 2100±100bc
Brenig 48 Hafod-y-Nant Criafolen	<p>A group of 7 house foundations and associated enclosures on either side of the Nant Criafolen, proved to be a post medieval settlement centred on the stream. Enclosures generally contained similar features: houses built of low, thick boulder and shale slab walls with a single entrance facing the stream; drainage gullies running through the house connected outside; each house enclosed in a ditch and an outer bank.</p> <p>The finds suggested a seasonal pattern of occupation involving a form of pastoral activity in the manner of the true Hafotai.</p>	3.23	<p>Brown and black glazed pottery from the Buckley kilns in Flintshire.</p> <p>Limited quantity of Green glazed pottery.</p> <p>10 stake holes surrounding a patch of scorched sub soil resembled discovery at Brenig 6. Small sherds of Black coarse pottery confirmed this structure to be of prehistoric date.</p>	<p>Earlier and up to 16th century</p> <p>Bronze Age</p>



Brenig 49 Hen Ddinbych	A well known post medieval settlement not excavated since it would not be affected by the reservoir scheme and work on an adequate scale would need a long time.	-	-	-	Post-medieval
Brenig 50	A natural feature.	-	-	-	-
Brenig 51 Platform Cairn	A very fine example of a platform cairn, occupied a striking position on the flat top of the ridge dividing Aber Llech Daniel from Afon Fechan, commanding views in all directions and most of the barrow group. Shortly before the cairn was built the site was occupied by a people making a domestic style of Beaker pottery. The cairn was built in two stages: initially a broad, flat ring with an open centre; later the centre was filled in to produce a continuous level platform of stone with a small semi-circular cairn abutting on the kerb. The area of Beaker occupation, accidentally preserved from stripping of earth for the cairn, provided, in addition to beaker sherds, pollen material which indicated some arable farming in the vicinity, but a preponderance of heather-moorland vegetation. In the cairn, the primary cremation contained the bones of an adult and a child, accompanied by a small funerary knife, in an enlarged food vessel. The central area then had been left open for a significant period of time. A hole in the centre suggested a marking post. Another burial predating the filling of the centre contained cremated bones, possibly accompanied by a burnt, bone knife. Following this phase, the small semi-circular cairn was added, concealing a pit with an urn, both containing pure charcoal. All the evidence suggested that the cairn was not primarily designed for burials but for associated rituals.	3.25	Beaker pottery.	Later Beaker tradition 1550±70BC	
Brenig 52	A knob of solid rock containing a band of quartz forming a natural mound.	-	-	Urn and pit containing charcoal.	1470±70BC
		-	-	-	-

*Note: Dates given as years bc are uncorrected radio carbon dates.*

### **Appendix 4.1: Schedule of the History of Knole Park**

<b>Date</b>	<b>Owner or Lessee</b>	<b>Recorded or Known History of the Park and Knole Estate</b>	<b>Sources of Information</b>
Thirteenth century	Otford Manor	Sevenoaks in reeveship of Otford. Knole not mentioned in any surviving public record. <i>Court Rolls of Otford</i>	Phillips C. J. <i>op. cit.</i> , vol.II, p.380
1281	Robert de Knole and successors, William and Roger de Knole	First known reference to Knole as a place. <i>Lambeth Palace Papers</i>  Earlier manor house existed probably in or near the Water Court of the present house and became the nucleus of a hamlet (Sevenoaks).	Sackville-West V. (1971) <i>op. cit.</i> , p.5  Phillips C. J. <i>op. cit.</i> , vol.II, p.380
1347	Henry de Grofhurst	Purchases the estate and becomes Lord of Knole. <i>Feet of Fines</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.383-388
1364 / 5	Descendants of de Grofhurst	Various grants and purchases to the estate of Knole. <i>Lambeth Palace Papers</i>	<i>Ibid.</i>
c. 1370	Geoffrey, Lord de Say and successor, William de Say	Estate passes to family of Say.	Sackville-West V. (1971) <i>op. cit.</i> , p.5
1446		Total acreage of estate: 510 land, 3 meadow, 3000 wood. <i>Feet of Fines</i>	Phillips C. J. <i>op. cit.</i> , vol.II, p.389
1447	James Fiennes	Becomes Lord Say and Sele, owner of Knole Estate.	Sackville-West V. (1971) <i>op. cit.</i> , p.6
1456	Thomas Bouchier, Archbishop of Canterbury	Purchases the manor house and surrounding land from William Fiennes for £ 266 13s 4d. <i>Lambeth Palace Papers</i>  Builds Knole House much to its present form and encloses a park around it, a much smaller area than the present.	<i>Ibid.</i>  Sackville-West V. (1947) <i>op. cit.</i> , p.21; and Phillips C. J. <i>op. cit.</i> , vol.II, pp.330 and 334
1466		Accounts of land added to the park, no acreages given.	Ward G. <i>op. cit.</i> , p.153
1468		A bill paid for 1000 palings ( <i>sic</i> ) used in park enclosure. <i>Lambeth Palace Papers</i>	Phillips C. J. <i>op. cit.</i> , vol.II, p.335
1480		8 acres of land exchanged with a neighbouring owner added to the park.	Ward G. <i>op. cit.</i> , p.153

1480		Various documents showing the archbishop living very much at Knole and enjoying field sports not regarded unclerical by the clergy of the age.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.390-391
1486		The archbishop grants Knole to the See of Canterbury.	<i>Ibid.</i>
1487	John Morton, Archbishop of Canterbury	Death of Archbishop Bouchier at Knole.	<i>Ibid.</i>
1500		Living at his town house as well as Knole. Records show Henry VII visiting Knole several times.	<i>Ibid.</i>
		Additions and improvements to the house and park; park gate installed.	Lambarde W. <i>op. cit.</i> , p.86; and Phillips C. J. <i>op. cit.</i> , vol.II, p.336
		Dies at Knole.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.391-392
1501 -1503	Henry Deane, Archbishop of Canterbury	Lives less at Knole, more at Otford Manor; died at Lambeth Palace.	<i>Ibid.</i>
1504	William Warham, Archbishop of Canterbury	Lives much at Knole. Records of both Henry VII and Henry VIII visiting him at Knole. Does not do field sports.	<i>Ibid.</i>
1530		Swine are kept in the park. <i>Records of the Office of Park Keeper</i>	Maidstone Library Archives
1532		Dies elsewhere.	Phillips C. J. <i>op. cit.</i> , vol.II, p.392
1532	Thomas Cranmer, Archbishop of Canterbury	Lives mostly at Knole; much of his correspondence addressed from there. Princess Mary, daughter of Henry VIII spends several months there. Considerable expenses on Knole recorded. <i>Lambeth Palace Papers</i>	Phillips C. J. <i>op. cit.</i> , vol.II, p.393 and pp.336-337
1538	Henry VIII	Takes over Knole and Otford manors in an exchange of properties. Cranmer reluctantly hands over Knole. <i>Hand written document by Cranmer's secretary, Lambeth Palace Papers</i>	Phillips C. J. <i>op. cit.</i> , vol.II, p.394
1538 / 9		£ 900 in buying / adding land to parks Knole and Otford. Deer very strictly reserved for the king against theft by locals - earliest clear documentary evidence of deer at the park. <i>State Accounts and Papers</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.395-396



1543		Private garden making mentioned as King's Garden at Knole. <i>State Papers</i>	Sackville-West V. (1947) <i>op. cit.</i> , p.21; and Phillips C. J. <i>op. cit.</i> , vol.II, p.337
1544		74 acres of land enclosed into the park by royal decree. <i>Transcript at Knole Muniments Room</i> . Works to mansions at Knole and Otford; purchases of land at Sevenoaks. <i>State Papers</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.395-396 and p.330
1546		making 'Standing Pool' at Knole.	Phillips C. J. <i>op. cit.</i> , vol.II, p.396
1547	Edward VI	On the death of Henry VIII Knole estate passes to his son, who never appears to have stayed at Knole in his short reign.	Sackville-West V. (1971) <i>op. cit.</i> , p.7; and Phillips C. J. <i>op. cit.</i> , vol.II, p.396
1551	John Dudley, Earl of Warwick and Duke of Northumberland	Royal patent by Edward VI assigns Knole to the duke as 'disparked'. A short period of occupation by the duke evident by letters addressed from Knole.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.396-397
1553	Edward VI	The duke returns Knole to the Crown.	<i>Ibid.</i>
1553	Queen Mary	Death of Edward VI.	<i>Ibid.</i>
1555 / 6	Reginald Pole, Cardinal and Archbishop of Canterbury	Granted by Queen Mary for life.	Phillips C. J. <i>op. cit.</i> , vol.II, p.398; and Sackville-West V. (1971) <i>op. cit.</i> , p.7
1558	Queen Elizabeth I	Death of Queen Mary and of Reginald Pole; Knole passes again to the Crown.	Phillips C. J. <i>op. cit.</i> , vol.II, p.398
1561	Robert Dudley, Earl of Leicester	Granted by Elizabeth I. <i>Royal Patent</i>	<i>Ibid.</i>
		A survey done for the earl mentions 446 acres and 50 deer at Knole Park.	Ward G. <i>op. cit.</i> , p.153
1565	(Thomas Rolf, lessee)	Earl of Leicester leases Knole for 99 years at £ 200 / year.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.398-399
1565	(John Lennard of Chevening, lessee)	Obtains the lease from Earl of Leicester for 600 marks ( <i>sic</i> ), on the death of Rolf.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.398-399; and Sackville-West V. (1971) <i>op. cit.</i> , pp.7-8
1566	Elizabeth I. (John Lennard, lessee)	The earl surrenders the leased properties to the Crown.	<i>Ibid.</i>

1566	Thomas Sackville, Lord Buckhurst and 1st Earl of Dorset. (John Lennard, lessee)	Queen Elizabeth I grants Knole Estate to her cousin, subject to the lease in effect.	Phillips C. J. <i>op. cit.</i> , vol.I, p.182, vol.II, pp.398-399; and Sackville-West V. (1971) <i>op. cit.</i> , pp.7-8
1570		John Lennard resides at Knole; prepares a deed granting Knole to his son Samson. Disputes with Lord Buckhurst regarding possession of the estate and claims to deer. 'Repaling of the park after it has been disparked'. <i>Family Papers of Lennards of Chevening</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.399-401
1570		Knole recorded as a deer park.	Lambarde W. <i>op. cit.</i> , p.51
1585		Park resources used for glass production: Hook Wood north of Echo Mount used for cutting wood; £ 26 worth of wood gathered and sold to glass makers; glass purchased by Lennards, possibly for house windows.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.333-334
		'John Lennard cutting down as much wood as he could to keep the glass furnace going'. Wood transported out of the park through 'The Painted Gate' near White Hart Inn (Fig.4.11). 446 acres to the park, 92 acres of woodland; 6 - 7 numbers of woods with names.	Ward G. <i>op. cit.</i> , pp.17-19
1586		Based on a letter by John Lennard, the wall around the private garden was built. <i>Family Papers of Lennards</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.336-337
1587	(Samson Lennard, lessee)	Succeeds to the lease by John Lennard's will.	Phillips C. J. <i>op. cit.</i> , vol.II, p.401
1603		Samson still occupying Knole according to 3 deeds; Thomas Sackville takes possession of the estate by paying off the 62 non-expired years of the lease; Knole becomes the principal seat of the Sackvilles.	<i>Ibid.</i>
		Extensive rebuilding of the house interior.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.216-217; and Sackville-West V. (1947) <i>op. cit.</i> , p.39
1608	Robert Sackville, 2nd Earl of Dorset	Succeeds his father, Thomas. Never seems to have lived at Knole.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.230-249
1609	Richard Sackville, 3rd Earl of Dorset	Succeeds his father Robert. Greatly diminishes the family fortune by selling much of the properties to pay debt.	Sackville-West V. (1947) <i>op. cit.</i> , p.58; and Phillips C. J. <i>op. cit.</i> , vol.I, pp.258-274

1612		Conveys / sells manor of Knole to other holders, keeping park and house on rent at £ 100 / year. Tenure document records 550 acres to the park. Park sublet for £ 60 an annum.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.262-274
1617		Lady Anne Clifford's diary - walking Wilderness over; quince marmalade made; cherries picked - shows the formal portion and the Wilderness portion of the private garden already established.	Sackville-West V. (1947) <i>op. cit.</i> , p.21
1623		A fire burns down part of the house; many early documents missing may have been destroyed.	Phillips C. J. <i>op. cit.</i> , vol.I, p.262; and Sackville-West V. (1947) <i>op. cit.</i> , p.6
1623		Carps kept in ponds of the park.	Maidstone Library Archives
1624	Edward Sackville, 4th Earl of Dorset	Succeeds his brother, Richard; clears debt and regains some family properties; Knole still on rent.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.294-316
1629		Total income from park and Sevenoaks assets £ 100; park pale repairs; mole hills spreading and killing moles; hunting rabbits by night and ferreting by day, 'Warriner' paid £ 5 / year, sale of rabbits makes 5th of park income; mowing meadows and making hay; 'Woodlooker' for keeping woods paid £ 2 / year; hops grown in the park, women paid for picking hops. <i>Account Books at Knole Muniments Room</i> . Cattle grazing in summer by two local farmers for £ 100 / year. <i>Deeds at Knole Muniments</i>	Phillips C. J. <i>op. cit.</i> , vol.I, pp.320-321; and Sackville-West V. (1947) <i>op. cit.</i> , pp.25-26
		500 acres of common chart land taken on lease and some of it put into the park.	Sackville-West V. (1947) <i>op. cit.</i> , p.92
1642 / 3		Civil war: arms taken from Knole and great damage to the house, old muniments damaged / destroyed; parliamentary troops hold sequestration committee at Knole , park and house seized; much timber from park and estate cut and sold; auction selling most of the wealth at house.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.336-370; and Sackville-West V. (1947) <i>op. cit.</i> , p.82
1645 / 50		4th earl's son re-acquires some of the properties and wealth including Knole Estate.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.371-374



1652	Richard Sackville, 5th Earl of Dorset	Succeeds his father, Edward. Resides most of his life at Knole. Some improvements to the house.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.379-393
1653		New lease obtained by the earl for Knole Park, house and properties at Sevenoaks. <i>Original Lease at Knole Muniments</i>	<i>Ibid.</i>
1661		Act of parliament allows re-acquisition of lost family property, Knole, Seal, Kemsing etc. <i>Poll Tax Order Signed at Knole</i>	<i>Ibid.</i>
		4 local farmers allowed to plough anywhere in the park, except in the plain around the house 'set by my lord', for rent of 1/3 of crop. <i>Deed at Knole Muniments</i>	Sackville-West V. (1947) <i>op. cit.</i> , p.25; and Phillips C. J. <i>op. cit.</i> , vol.II, p.331
1662		Mulberry trees growing / planted in the Wilderness; gardener paid £ 12 a year; Bills for 'never ending alterations to the Wilderness'.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.391-408; and Ward G. <i>op. cit.</i> , pp.122-125
1666		Great fire in London burns down Dorset House: reason for many early family documents missing.	Phillips C. J. <i>op. cit.</i> , vol.I, p.409
1677	Charles Sackville, Earl of Middlesex and 6th Earl of Dorset	Succeeds his father, Richard.	Phillips C. J. <i>op. cit.</i> , vol.I, pp.419-488
1695		Formal part of the private garden with great variety of culinary and scented plants. <i>Gardener's Bills at Knole Muniments</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.336-337
1695		Camden's Britannia records Knole Park with south-western boundary having reached Tonbridge road (fig.4.14).	Morden R. <i>op. cit.</i>
1700		Map showing park pale coming farther south than level of White Hart Inn.	Ward G. <i>op. cit.</i> , p.154; and Map at Maidstone Library Archives
1706	Lionel Cranfield Sackville, 7th Earl and 1st Duke of Dorset	Succeeds his father, Charles. An elaborate gardener's agreement at Knole Muniments.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.1-2 and p.337

1707 (?)	Engraving by Leonard Knyff and Johannes Kip (fig.4.15) showing private garden with many similarities to the present and much convincing layout to the park. Avenues either side of the garden and formal planting around may have been proposed at the time, but not already planted.	<b>English Houses and Gardens in the 17th and 18th Centuries</b> , Batsford, 1908, London, plate II
1718	New Oak Walk planted; cutting bows in the yew at the end of the new Oak Walk; planting walnut trees round the keeper's lodge. <i>Gardener's Records at Knole Muniments</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.337-338; and Sackville-West V. (1947) <i>op. cit.</i> , pp.22-23
1719	Engraving by Johannes Kip (fig.4.16) showing private garden with little, if any, similarity to the present, and avenues in the park, perhaps proposed at the time but never laid out, except three; enclosed, young trees and woods in the park, perhaps already planted.	Harris J. <i>op. cit.</i> , vol.I, pp.278-279
1719	Engraving by Thomas Badeslade (fig.4.17) showing the avenues parallel to the private garden probably, already planted and other formal planting proposed at the time; private garden largely a proposal; fairly convincing layout to the park with young planting around the keeper's lodge.	Harris J. <i>op. cit.</i>
c. 1720	Document giving types and extent of some land uses in the park: Plain lands: acres 320. 3. 38 Rough lands: acres 295. 2. 9. <i>Survey Document at Knole Muniments</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.16-18
1723	'Planting ye quarry in ye parke; planting 2000 small beeches in ye parke; 10,000 seedling beeches for my lady Germaine'.  Extensive planting / alterations in the private garden: fruit walks altered; 10,600 turves cut; 'Duke Cherries in ye garden; peach and nectar trees in ye garden; 2400 quicksets for ye kitchen garden; 1000 holly for ye kitchen garden; 200 pear stocks; 300 crab; 200 cherry; 500 holly; 700 hazel; new making mulberry garden and sowing front walk with seeds; 50 bushels of sweet apple for cider; 1 bushel buckwheat for ye pheasants'. <i>Gardener's Records in Knole Muniments</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.338-339; and Sackville-West V. (1947) <i>op. cit.</i> , pp.22-23

1724	Additions to park amounting to some 110 acres in total: 93 acres of Julian's Common; 15 acres east of White Hart Inn- a portion of which would have been enclosed - and 2 acres near Fawke Common.	Ward G. <i>op. cit.</i> , p.154
1726	16 acres 17 and 1/2 perches added to park included field at top of River Hill, between River Hill and Cock Wood, two fields between Cock Wood and park and field next to Julian's Common. <i>Royal Bill at Knole Muniments</i>	Phillips C. J. <i>op. cit.</i> , vol.II, p.19
1726	Ice house in use. Duck hunting in the park according to a poem by young Charles Sackville, 2nd Duke of Dorset; refers to a pond and a stream in the park.	Phillips C. J. <i>op. cit.</i> , vol.II, p.339 and pp.89-90
1728	Planting 160 elms in field next to Tonbridge road and sowing the field with furze seeds.	<i>Ibid.</i>
1730	'300 beeches 8 feet high; 250 large beeches planted in ye parke; asparagus and apricots in ye garden'. <i>Gardener's Records</i>	<i>Ibid.</i>
1730 / 1	4 acres near Knole Paddock added to the park.	Ward G. <i>op. cit.</i> , p.155; and Phillips C. J. <i>op. cit.</i> , vol.II, p.331
1735	Chestnut Walk planted.	Brightwell Jane, oral information, confirmed by counting annual rings on fallen trunks in the ecological survey, 1988
1736 / 38	28 acres at Skeen Hill near Godden Green purchased and a part may have been added to the park.	Ward G. <i>op. cit.</i> , p.155; and Phillips C. J. <i>op. cit.</i> , vol.II, p.331
1746	10 acres, part of Blackhall Manor, added near the golf-course.	<i>Ibid.</i>
1748	3/4 of an acre added near extreme southern corner of the park.	<i>Ibid.</i>
1750	853 acres to the park	Ward G. <i>op. cit.</i> , p.154
1750	Storks were kept at Knole. <i>Document Giving Feeding Instructions</i>	Maidstone Library Archives



1750		Trees on the Echo Mount planted.	Brightwell Jane, oral information
c. 1761		Birdhouse and ruins around built. Bull baiting in the park.	Sackville-West V. (1947) <i>op. cit.</i> , p.153; and Phillips C. J. <i>op. cit.</i> , vol.II, p.332
1765	Charles Sackville, 2nd Duke of Dorset	Succeeds his father, Lionel.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.84-97
1769		Death of 2nd Duke. Horace Walpole visits Knole, in the absence of 3rd Duke, and writes: " <i>He (2nd Duke) has not left a tree standing in the venerable old park at Knowle. Dead after having worn out his estate. The place is stripped of its beeches and honours and has neither beauty nor prospects.</i> "	Phillips C. J. <i>op. cit.</i> , vol.II, p.97; and Sackville-West V. (1947) <i>op. cit.</i> , p.181
1769	John Frederick Sackville, 3rd Duke of Dorset	Succeeds his uncle, Charles; 'was very much attached to Knole' and 'many of the finest plantations in the park were formed under his direction'. His account book records an inspection of park in 1766. Cricket ground in the park may date from this period.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.187-198
1769		Topographical map showing southern portion of the park much similar to present; Chestnut Walk indicated (fig.4.18).	Andrews J., Dury A. and Herbert W. <i>op. cit.</i>
1772 / 96		Large sums spent on house repairs; hothouses and pineries built; Tudor windows made Gothic; some paths in the garden made serpentine; clock tower erected. <i>3rd Duke's Account Book at Knole Muniments</i>	Phillips C. J. <i>op. cit.</i> , vol.II, pp.187-189; and Sackville-West V. (1947) <i>op. cit.</i> , p.24 and p.176
c. 1775		Cricket ground in the park in use.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.193-198
c. 1782		4 or 5 acres added to park from lands on the east side near Blackhall. Godden Wood exchanged and added to the estate.	Ward G. <i>op. cit.</i> , p.155; and Phillips C. J. <i>op. cit.</i> , vol.II, pp.202-203
1783		Map of the Hundred of Codsheath indicates the southern portion of the park already reached its present form; shows Chestnut Walk (fig.4.18).	Hasted E. <i>op. cit.</i> , vol.I, pp.314-315
1792		Locks Bottom and other lands added to the park.	Ward G. <i>op. cit.</i> , p.155; and Phillips C. J. <i>op. cit.</i> , vol.II, pp.202-203

1795		Blackhall Farm bought and run as house farm for Knole.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.203-205
1795		Locals requesting permission for a hearse to pass through the park, as the roads in the area were poor in condition.	<i>Ibid.</i>
1799		Land near Knole Lane bought and enclosed into the park.	<i>Ibid.</i>
1799	George John Frederick Sackville, 4th Duke of Dorset	Succeeds his father, John; park and estate kept for the young duke by his mother Arabella Diana, Duchess of Dorset and stepfather, Lord Whitworth.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.263-297
1800		Tithes for all land ploughed at Knole. A piece of land added to park at Motley Austen.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.296-297
1801		Mudge's Map of the County of Kent giving fairly detailed layout of the park: southern portion similar to the present; Chestnut Walk, Broad Walk and Duchess Walk and at least 6 wood copses mapped; the northern portion still short of the present extent (fig.4.19).	Old Series Ordnance Survey of England & Wales, 1801, Kent sheet 3
1802		Lands at Fawke Common bought; a strip may have been added to the park by the duchess.	Phillips C. J. <i>op. cit.</i> , vol.II, p.331
1804		Map of 'Knowle Park': about 15 'coverts' in a layout much similar to the present. Present form of northern boundary not yet reached (fig.4.19).	Sevenoaks Library Archives
1807 / 8		Knole Paddock bought and some land added to the park; deer from paddock would have been moved to the park.	Ward G. <i>op. cit.</i> , p.155
c. 1810		Knole orangery and garden front colonnade built.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.300-306
1811		Number of plantations laid out in the park: 3000 larches and 17,000 firs planted. A pack of hounds kept at Knole.	<i>Ibid.</i>
1813		Planting of 30,000 young trees, mainly beech, some sycamore, larch and ash.	Maidstone Library Archives
1815	Lady Mary Sackville	Death of 4th Duke. Estate divided between his two sisters, Lady Mary and Lady Elizabeth. Park kept by mother, Duchess of Dorset and Lord Whitworth.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.268-308

1825		Death of Lord Whitworth and later of Duchess of Dorset. Park kept by Lady Mary and husband, 6th Earl of Plymouth.	<i>Ibid.</i>
1825 / 6		Blackhall Manor divided between Knole and Wildernesse Estates and about 45 acres added to the park. Knole Paddock enclosed into the park. Park boundary wall built.	Ward G. <i>op. cit.</i> , p.155; Phillips C. J. <i>op. cit.</i> , vol.II, p.269 and p.331; and Brady J. H. <i>op. cit.</i> , p.69
1827		Heavy encumbrance of keeping Knole.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.268-316
1833 / 9		Death of 6th Earl of Plymouth; Lady Mary's second marriage to Earl Amherst.	<i>Ibid.</i>
1852		1 acre 15 perches from the west side of the park given to build the new Turnpike road.	<i>Ibid.</i>
1864	Lady Elizabeth Sackville-West	Death of Lady Mary. The park passes to her sister and husband John West, 5th Earl de La Warr.	<i>Ibid.</i>
1867		Shirley lists Knole as one of the 3 deer parks remaining from the many Kentish deer parks recorded by Lambard(e) in 1576; "...park, ornamented with the finest beech trees" and "covered with as fine a turf as any in the world. ..contains 1000 acres," (exaggerated) "more than half of which is covered with timber; there is a herd of 400 fallow deer."	Shirley E. P. <i>op. cit.</i> , pp.70-71; and Lambard W. <i>op. cit.</i> , p.51
1868		Ordnance Survey 1st Edition (fig.4.22): park some 100 acres larger than present; layout much the same as present; records a rifle range set up in the south valley, viewing platform (Mast-head) erected at the southern end and notable ancient trees such as The Old Oak, The King Beech and King John's Oak.	Ordnance Survey of Great Britain, 1st Ed., 1868, Kent sheet 40
1870	Reginald Windsor, Lord Buckhurst	Death of Lady Elizabeth; park and estate conveyed to the baron by order of the House of Lords.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.313-317
1873	Mortimer Sackville-West, 1st Lord Sackville	Inherits park and estate on succession to the barony of Buckhurst.	<i>Ibid.</i>
Late nineteenth century		Cedars south of the house planted.	de Haen Viktoria <i>op. cit.</i> , p.21



1882		Large fire at Knole House.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.317-325
1884		Unrest at Sevenoaks due to closure / obstruction of Town Gate for footpath and bridle-way to Fawke Common; some 1200 people remove obstruction and mob the house in protest. Poor relations with the parishioners develop; 1st Lord closes public viewing of house treasures.	<i>Ibid.</i>
1888	Lionel Sackville-West, 2nd Lord Sackville	Succeeds his brother, Mortimer. An evaluation of the properties inherited gives Knole Park acreage as acres 940. 1. 38.	<i>Ibid.</i>
1892		Whitaker's description of Knole Park: "Acreage 1000 acres. Fence partly stone partly oak pales. Great variety of hill and dale, with high level land thickly studded with fine beech trees, oak & c. Water supply natural"; "barely sufficient in dry seasons." Number of fallow deer 670; red deer 60. Does not record Japanese sika deer; they would have been introduced within this decade, according to Whitehead (see below).	Whitaker J. <i>op. cit.</i> , pp.80-81
1908	Lionel Edward Sackville-West, 3rd Lord Sackville	Succeeds his uncle, Lionel.	Phillips C. J. <i>op. cit.</i> , vol.II, pp.326-329
1923		Golf-course inserted to the park.	de Haen Viktoria <i>op. cit.</i> , p.21
1927	Charles John Sackville-West, 4th Lord Sackville	Succeeds his brother, Lionel Edward.	Phillips C. J. <i>op. cit.</i> , vol.II, p.329
1946		Knole House, private garden and entrance area of the park handed over to the National Trust with an endowment sum for upkeep.	Sackville-West v. (1971) <i>op. cit.</i> , p.15
1950		Whitehead's description of Knole: 1949 population of deer- fallow 300, Japanese sika 80 - first introduced around 1890, sent to Knole by the late Duke of Bedford.	Whitehead G. K. <i>op. cit.</i> , p.245
1958 / 65		Two new plantations in south-west of the park. Broad Walk, Fawke and Shendon plantations established in south-east to raise beech woods in mixed softwood nurse crops. About 2000 young hardwood seedlings planted.	Estate Office Records

1962	Bertrand George Sackville-West, 5th Lord Sackville	Succeeds his brother, Charles.	Phillips C. J. <i>op. cit.</i> , vol.II, p.329; and Sackville-West v. (1971) <i>op. cit.</i> , p.15
1965	Lionel, 6th Lord Sackville		
1987		Storm destroys about 70% of the trees in the park.	

**Appendix 4.2: Oral History Information on Knole Park (Reproduced with Kind Permission from Messrs. Colvin & Moggridge)**

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### KNOLE PARK IN THE 1920s

Note of a conversation with Sam King : 27th March 1989

Sam King, a former Ryder Cup player and for many years professional at the Knole Park Golf Club, was born in 1911 in one of the Bow Peth Cottages, which are just outside the Park near Godden Green. His father and his grandfather were charcoal burners by trade, supplying charcoal for the hop kilns of Kent and for many specialised users. (He has magnificent photographs of his forebears at work.) On 27th March 1989 Sam King kindly showed me numerous little remembered features of the Park, describing life in the 1920s. The numbers on the notes below refer to the key plan which locates the items described.

#### Rights of local people

Local people were allowed to take 'driftwood' out of the Park without payment, for burning at home, but only branches without axe or saw marks; loads were often checked at the Park gates; prams could be used for carriage. They were also permitted to take chestnuts, but only pocketfulls not bags so that plenty were left for the deer to feed on.

#### Chestnuts

Chestnuts were grown in the Park to supply nuts to feed the deer; the best nuts grow on the crown of the tree. They were also used for palings and posts. Young chestnuts were grown from Park seeds in a nursery and then planted out. The Park boundary, except the wall, was made from chestnut board fencing.

#### Red deer

There was a red deer herd in the Park until 1935, but about that year they were removed as they kept escaping and damaging surrounding orchards. They were also more aggressive. They kept the base of the tree canopy high enough to walk freely everywhere without having to bend beneath branches.

1. Deer were slaughtered in one of the north yards.
2. All doors, gates, etc., were painted a standard dark blue - the Knole colours; the central door on the outside of the N-E barn is still this colour.
3. The detached yard was said to have once housed wild boar.
4. The whole of Echo Mount used to be a rabbit warren supplying to the household.
5. 'Hook Wood' lies north of Echo Mount.
6. Pond:- The round pond with a walled edging also has a metalled access ramp down into it from the N-E (still extant). It was once surrounded by white railings about 1.5m set back from wall. Water from this pond was carried by hand down to the valley to the north for charcoal keeling (damping down).
7. Site of 'Witch Oak' a large hollow oak in which an old woman lived in the 1920s, dossing down there for shelter.
8. Site of 'Queen Oak'.
9. Site of 'Straight Beech' remarkable for its long straight stem.

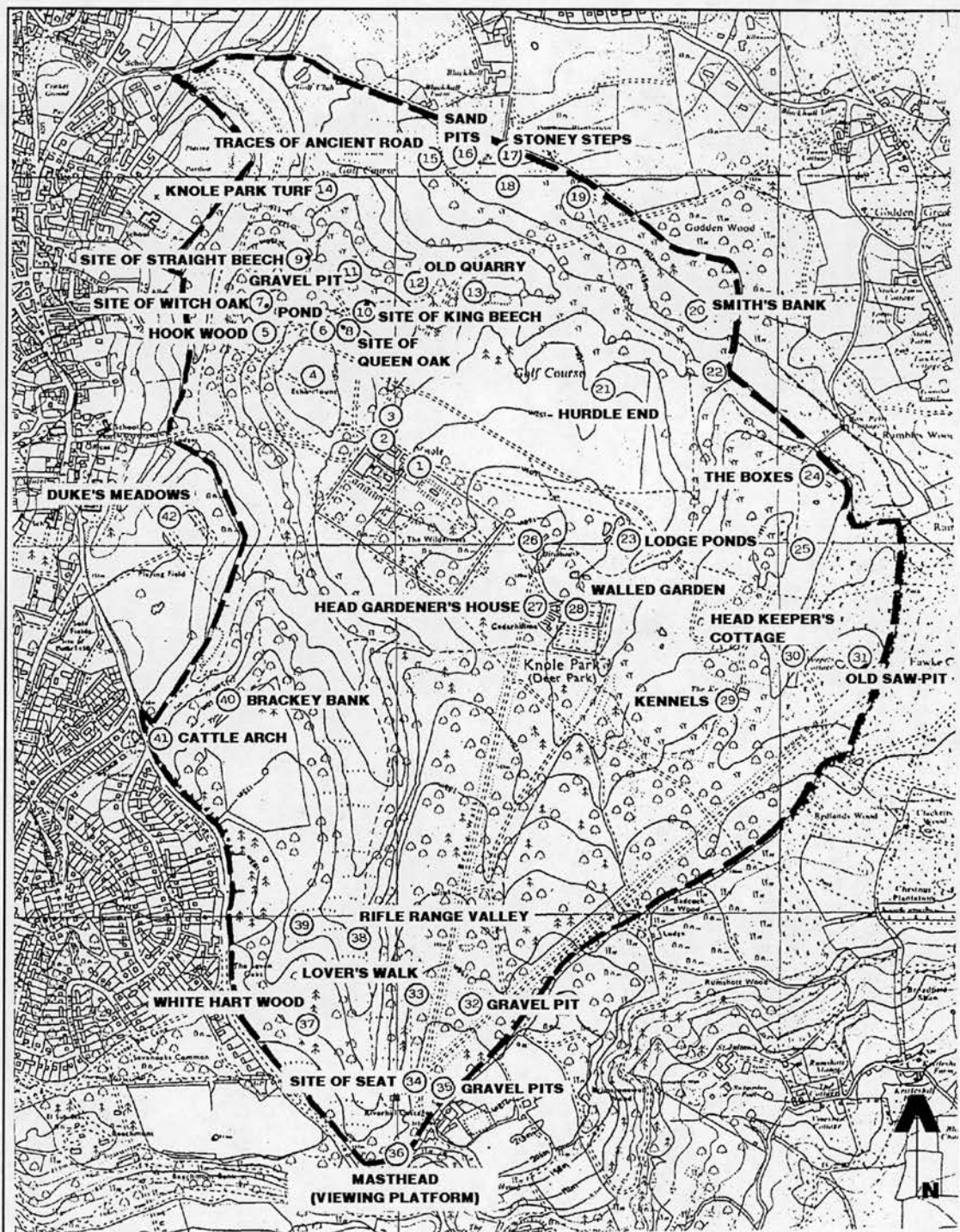


10. Site of 'King Beech', a huge ancient beech held together with ancient straps; these straps were made with a portable forge. There are still lumps of concrete on this site, which were once filling cavities in the tree. Remnants of a circular metal railing are also visible; each important park tree was protected by a railing; latterly in the absence of such railings several old hollow trees have been destroyed by children starting fires inside them. The path past King Beech was in constant use as people walked from Godden Green to Sevenoaks.
11. Old surface gravel pit, since planted with young beech.
12. Old quarry subsequently filled with household rubbish from Knole House.
13. Old stone quarry, partly filled with very hazy glass fragments from the House glassworks; these fragments can still be seen.
14. In the valleys, e.g. below the Golf Club, shallow turf used to be cut and sold as "Knole Park Turf". This may contribute to the marked differences between the character of the turf in different parts of the Park. Turf is still being cut from the rough on the golf course to make good the fairways
15. The ancient Packhorse Road to Tonbridge is visible as a hollow in the ground, rising from Pain's Gate by Blackhall Farm. Fragments of this packhorse road can probably be seen elsewhere in the Park.
16. Sand pits for glass, sand.
17. 'Stoney Steps', an old stone stile over the Park wall.
18. During the 1914-18 war, there were dugouts and training trenches in use here.
19. 75 year old pines, mostly destroyed by the storm.
20. 'Smith's Bank', on which fine chestnuts grew.
21. 'Hurdle End', site of a large arable enclosure surrounded by chestnut buck gates (i.e. hurdles tall enough to exclude deer).
22. Old stone pits.
23. 'Lodge Ponds', important to farming enterprise; used as a sheep dip, to supply ice for the icehouse and to clean the horses' feet after they had ploughed Hurdle End.
24. 'The Boxes', which was the Estate Farm; remnants are still to be seen within the pine wood. Concrete bases outside the Park boundary were a dairy. (Bow Peth Cottages are just to the north of this.) The Estate Farm was an important enterprise in the life of the Park and included piggeries and cattle; in 1926 a bull from the Park was the Prize Bull in the County Show.
25. Former grass area, on which golf was practised by Sam King as a boy.
26. There were lime trees on the knoll behind the birdhouse.
27. The head gardener's house, where Mr. Stubbs head gardener in the 1920s lived.
28. In the walled garden there was a row of timber bothies in which young apprentice gardeners lived; Knole was a well considered start to a gardening career. At least one of these bothies still survives.
29. Black labradors were kept in the Kennels.
30. The Head Keeper's cottage, George Hodder in 1920, when E.B. Glazier was Agent. (Sam King has a photo of these with Captain Knight.)
31. Site of old sawpit, still visible as a rectangular hollow. The pit was roofed. Logs were rolled across the pit longways on and sawn into thick planks by hand, the 'top dog' above drawing the heavy saw up, the 'bottom dog' below pulling the blade down to cut. Logs were carried to the pit by jigwheels (now in a Sussex museum), which consisted of a single pair of large wheels with an upward curved oak axle into the circle of which logs were lifted at their point of balance; this was then drawn by horse.

32. Large gravel pit.
33. 'Lovers' Walk' with huge larches on the east side.
34. Site of turn-over seat looking down into Riflerange Valley.
35. Gravel pits with larches nearby. All the Park roads were park hoggin over larger gravel in the 1920s, kept in condition by watering and rolling. Various sizes of gravel are clearly visible in this pit.
36. 'Masthead', where there was a 3m square timber platform mounted by ladder called the 'Grandstand'. Wide southerly views were kept open by felling trees on the south side of the lane. The earthworks below this structure are still clearly visible.
37. 'White Hart Wood'.
38. Peter Cazelet trained the royal horses in 'Riflerange Valley'.
39. In the 1914-18 War there was a rifle range in the side valley with butts in the east bank of the main valley.  
In the 1920s charcoal was burnt in this valley, on a site handy for the White Hart; ash can still be found.
40. 'Brackey Bank'.
41. 'Cattle Arch' giving access to fields from Park Farm.
42. 'Duke's Meadows' for cattle grazing.

HTM/s/K1  
29/3/89

Jane Brightwell, an elderly resident of Sevenoaks, descends from a family who have been closely associated with the Sackvilles and Knole Park for several generations. In addition to her own memories of the park and its uses during her life time, she was able to recount certain events and developments at the park in the distant past, from the knowledge she had inherited from her forebears. With her help the landscape architects were able to date and interpret several important features of the park, in particular the dates for planting of the avenues and groves of tree on the central plateau, for which no other records were available. The original transcripts of the landscape architects' interviews with Jane Brightwell are not presented here, as they could not be found in the Colvin & Moggridge archives.



## KNOLE PARK

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Knole Park in the 1920s

KEY TO NOTES OF  
CONSERVATION WITH  
SAM KING

27th March 1989



**Appendix 4.3: Recommendations by the Deer Consultant for the Future Management of Deer at Knole Park (Reproduced with Kind Permission from Messrs. Colvin & Moggridge).**

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### KNOLE PARK - DEER

Notes of meeting with Mr. Richard Prior : 21st November 1988

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#### 1. The Ancient Deerpark

##### 1.1 Mediaeval:

- (a) Intensive venison production was main original function.
- (b) Sport: deer were driven past sportsmen hiding in arbours from which they shot.
- (c) Enclosure was usually with bank and paling round the outside of the deer park. This consisted of posts at say 10 feet intervals with 3 rails; cleft pales were then fixed to the rails, irregular in length as deer dislike jumping uneven fences. They were difficult to maintain in good order.
- (d) Traditional density was 1 acre of parkland per deer.

##### 1.2 Commonwealth:

Deer parks were mostly despoiled and broken after the Civil War.

##### 1.3 Restoration onwards:

- (a) Deer parks became more ornamental in purpose.
- (b) Food production continued, including improved technology such as 'heaviers' (gelded stags).

#### 2. Contemporary Deerpark Policy at Knole

- 2.1 The aim is to continue deer running loose as the management technique at Knole but to update methods so that the cost of management is covered by income generated. This will bring practice back nearer to the mediaeval.
- 2.2 The deerpark is the ideal modern recreation park on acid soils as hostile ground vegetation (e.g. nettles, brambles) is replaced by fine grassland and bracken. This is ideal for walking, play, riding (by licence fee at Knole), etc.
- 2.3 The deer themselves are also attractive to look at, eat paper-based litter and do not foul the ground.
- 2.4 No other stock than deer are to be introduced as sheep and cattle do not mix well with deer.
- 2.5 Deer species are to be fallow 85%, Japanese sika 15%.  
No red deer are to be included in future.  
Fallow and sika do not interbreed.

- 2.6 To achieve a balancing budget under present-day conditions, production needs to be increased to 250 fawns per annum so that there are 100 female fallow deer to sell live, and stags and sika for venison. (Live fallow deer now sell at £180 each.)
- 2.7 Deer occupy the Park in herds each occupying localised habitats.
- 2.8 As the ground at Knole is so poor, stocking will be much lighter than 1 per acre.

### 3. Ground Cover Types

#### 3.1 Deer Feed Grassland for deer consisting of:-

Mixture C: grass mixture for use in relatively poor soil conditions, as found in hill areas with high rainfall and on woodland rides in sandy soil. This mixture will tolerate acidity but the herbage will be more palatable if lime is applied from time to time.

Sow between April and August.

3.50 kg Highland Bent (*Agrostis tenuis*)  
 5.50 kg Creeping Red Fescue (*Festuca rubra*)  
 2.50 kg Sheeps Fescue (*Festuca ovina*)  
 2.50 kg Smooth-stalked Meadow Grass (*Poa pratensis*)  
 0.25 kg Birds Foot Trefoil (*Lotus corniculatus*)  
 0.25 kg Wild White Clover  
14.50 kg per acre (36kg per hectare)

(p.186 'Trees and Deer' by Richard Prior)

The more of this grassland available the better from the point of view of deer health. Its success will involve the application of nutrients (not nitrogen which produces unsuitable grass growth) and possibly some lime though at Knole this may be futile.

In winter crops for feed will be brought in on a daily basis.

This grass mix produces no flush in spring but a steady slow growth.

#### 3.2 Golf land grass: (consult golf club)

#### 3.3 Wild Acid Grassland: NCC to define the key areas where grass with no nutrients is to be retained.

#### 3.4 Flowery Pastures:

Deer eat flowers. However it would be suitable to include some fenced pastures to be grown to flowery hay pastures until June, then cut for hay and opened up for subsequent grazing. Such pastures might be created within woodland areas, particularly somewhat away from the intensive public access on the west side of the Park.

#### 3.5 Bracken:

Bracken is essential to deer management with public access so that deer and fawns can hide. The bracken should be grown in blocks 5-10 hectares in size, of any shape, but continuously bracken. Bracken should be prevented from spreading onto the grassland from the blocks by topping. Bracken blocks should occur throughout the Park. The most critical period for the use of bracken is June when fawns are dropped.

#### 4. Trees, Fencing and Deer

- 4.1 Special shelter is not essential, deer being hardy against wind, cold and rain. However some areas sheltered by old trees are desirable with access for deer.
- 4.2 Deer eat shrubs up completely, in particular bramble. Therefore there are no shrubs at Knole. The only less palatable species are *Lonicera nitida*, *Juniperus communis*, *Gaultheria shallon*, *Symphoricarpos rivularis* and *Rhododendron*. (The last two are so invasive that introduction to Knole would seem an error).  
(p.187 'Trees and Deer' by Richard Prior)
- 4.3 Fallow deer browse trees to a line 1.6m above ground level. On falling ground evergreens so browsed still produce blocked sight lines.
- 4.4 Lop and top can provide protection for young trees against deer.
- 4.5 Glades: deer like irregular shaped glades.
- 4.6 **Enrichment with Individual Trees:**  
Where old trees in substantial numbers remain standing, underplanting at wide spacing is appropriate.  
For this purpose individual trees in tree shelters should be guarded by a 1 metre diameter weldmesh guard, 2m high above ground (for fallow) supported by 3 tanalised stakes 2½" round at the top.
- 4.7 **Small Clumps:**  
Small clumps can be established if planted in circular fencing (NOT square), 20m diameter maximum, with 1.2m high fencing. (c.f. Stonor Park)  
Deer do not like jumping into small circular enclosures and also dislike staying inside them!  
Such enclosures can contain both trees and shrubs. Consider for this reason permanent cast iron railings in selected positions where a low level block is desirable.
- 4.8 **New Woodland:**  
Deer must be excluded from new woodland.  
For this purpose 2m high fencing is essential. 16 wire dropper fences are the least obtrusive deer fence with metal or less long-lasting tanalised posts.  
Consult Peter Jackson of J.B. Corrie Fences,  
Frenchman's Road,  
Petersfield, Hants. GU32 3AP.  
Tel: 0730 62552
- 4.9 **Gates through deer fences:**  
Kissing gates, always closed for animals, with chain and weight on the inside are needed. The box must be large enough for a pram, cycle or wheelchair to enter.  
On minor routes high ladder stiles can be accepted.

#### 5. Special Facilities

- 5.1 **Deer Leaps into Park:**  
Three are needed at Godden Wood (reconstruction), Fawke Wood and possibly one other location.  
To consist of a 1.6m high wall on line of boundary fence below ground level with a drained hollow, semicircular in cross section and rising into the park at a maximum slope of 1:3.  
The gap in the outer fence is to be 0.6m wide with top straining wire continued across the top.
- 5.2 **Catching Area in Old Walled Garden:**  
The wall (Grade 2) is to be rebuilt.  
Inside special deer enclosures will be constructed.  
A new gate is needed on the north side and proper rebuilding of existing east and west gates.  
At the east side a through way to collect deer is required.

cc: Richard Prior  
Dr. T.T. Elkington  
HTM  
VdH

HTM/s/K1  
22/11/88



**Appendix 4.4: The Detailed Future Management Policy for Knole Park Restoration.**  
(Reproduced with Kind Permission from Messrs. Colvin and Moggridge)

**APPENDIX 4.4: The Detailed Future Management Policy for Knole Park Restoration**

Area and General Policy

**CLOSED CANOPY WOODLAND**

These woodlands should be enclosed every 125 years on a rotation system to allow some natural regeneration and replanting before trees grow overmature and to provide a varied age structure. The proposed rotation system is shown on page 40.

The presence of the deer prevent the survival of a shrub layer on the whole, although a few seem to withstand them. As deer do not eat Rhododendron it can be retained in local areas for cover, screening and to catch deer.

**OTHER PERMANENT GRASSLAND**

This covers a rather wide range of grassy ground vegetation differing mainly in the availability of moisture. Some areas should be carefully improved to provide better feeding conditions for the deer.

Management Activities

- When an area is due to be enclosed:
- 1. Wait for a beech, oak or chestnut mast-year (depending on which tree species is dominant). Cover the ground with chipped bark and lop and top to prevent the acorns from being eaten (improves ground conditions as well).
- 2. Carry out heavy, but irregular thinning to open up the canopy. Retain a good quantity of over-mature trees!
- 3. Leave some felled wood of all qualities scattered about for the beetles, especially in areas where there are no trees in natural decay.
- 4. Shred lop and top and leave on site to improve ground conditions (especially important at present in areas where the topsoil has been severely damaged).
- 5. Put up deer fencing, include at least one deer leap in each (Page 41) to enable deer that have got in to leave the plantation again. The enclosing fences should be maintained for at least 25 years.
- 6. Encourage natural regeneration especially under original park trees. Interplant where necessary.
- Squirrel control will be essential!
- Encourage regeneration of shrubs at woodland margins during enclosure times.
- Make sure to prevent Rhododendron spreading lest it invades the whole Park!

- Improvement for deer feeding should be carried out by applying nutrients, except nitrogen in pellet form to avoid affecting other areas.

#### PASTURE WOODLAND

An open canopy of trees with a varied age structure should be sustained. The emphasis should be on overmature trees to provide the beauties that link up the centuries. Allow natural decay of trees as an important feature.

- Encourage natural regeneration by fencing in selected out-standing trees in most years. This will have to be done in October.

Interplant with single trees and circular clumps where necessary; remember not to plant in view lines. Such interplanting should be carried out regularly.

Only very selective thinning and felling should take place, the emphasis being on leaving trees to die naturally.

The main tree species are sessile and english oak, sweet chestnut and beech. Hawthorn should remain dotted around.

#### PURE ACID GRASSLAND

This grassland, which is recognisable by its golden autumn shine and its bumpy ant hills, needs to be undisturbed to survive in its present form.

- The main management for this area is to stay away from it!
- No fertilizer, chemical or other treatment should be applied and when applied to nearby areas care must be taken to avoid wind blow or washing over; granular applications to adjoining areas are recommended.

Bracken should be pushed back a little and not be allowed to invade the grassland.

- Bracken control should be undertaken by dragging a timber baulk over a strip approx. 10m wide around the edge of the acid grassland, where the bracken can be controlled without disturbing the ancient grassland.

#### BRACKEN

This should be managed according to the needs of the deer to achieve a balance between the need for large bracken areas as shelter and sufficient grassland for food.

- Bracken should be controlled by dragging over it with a sleeper.

The pattern of bracken should harmonise with the informal character of the Park.

- Rather than repeatedly dragging along the same edge line, big patches should be eradicated every few years and thereafter allowed gradually to recolonise.

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